BRITISH MEDICAL JOURNAL:

BEING THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

EDITED BY ANDREW WYNTER, M.D.

No. CXVII.] LONDON: SATURDAY, MARCH 26, 1859. [NEW SERIES.

Illustrations OF HOSPITAL PRACTICE:

METROPOLITAN AND PROVINCIAL.

BIRMINGHAM GENERAL HOSPITAL.

MEDULLARY CANCER OF THE PERITONEUM.

Under the care of JAMES RUSSELL, M.D.

(E. RYLAND, Esq., *Clinical Clerk.*)

SUSAN J., aged 70, was admitted on February 18th, 1859. At her admission, she was in a state of great exhaustion, and from this state she never rallied. The few particulars of her illness which could be gained, were as follow:—She had fever a fortnight before last Christmas, but she returned to her usual occupation in a month's time. During the fever, she had neither pain in her bowels nor diarrhœa; but three weeks ago she was suddenly seized in the night with severe pain in the upper part of her abdomen, and in the course of a week she began to suffer from vomiting; the bowels became much enlarged. At the commencement of this illness, anasarca appeared in the left lower extremity. Her previous health had been very good. She had never suffered from any abdominal symptoms. She had worked very hard for the last ten years, and had suffered much from anxiety.

On admission, there was advanced emaciation. The abdomen was much distended, but free from tenderness; the flanks were dull on percussion, and there was evident fluctuation in both these regions. Marked induration, of limited extent, existed in the hypochondriac region, and extended into each iliac region. On the left side it terminated by a well defined but irregular margin; on the right side its limits were less distinct to the touch. The indurated body was quite superficial, and appeared to be intimately connected with the abdominal parietes. There was considerable œdema of the left lower extremity, as high as the knee, and to a much less extent of the right also. There was no indication of disease in the femoral vein, nor any venous distension in either limb. Nothing worthy of note was discovered in any other organ.

During the short remainder of her life, she had considerable irritation in her bowels, frequent but ineffectual calls to use the bed-pan, with much movement of flatus; the small quantity of fæcal matter which was passed was in part solid, in part fluid. A small dose of castor oil produced several liquid stools, but without much relief; and she afterwards suffered for two or three days from diarrhœa. She died on March 4th, of gradual exhaustion. Her features became sunken; her voice faint; and her tongue dry and glazed. She was supported mainly by brandy.

EXAMINATION OF THE BODY twenty-four hours after death. *Chest.* The heart was small; it weighed only six ounces and a half. Its fascicles were in an early stage of degeneration; their transverse striæ were faintly marked, and the sarcous elements were confused and indistinct, and presented rows of bright globules. Many fascicles were reduced to one-half their normal diameter. The left lung was collapsed, though crepitant; the lower lobe of the right was solidified, and its tissue was soft; it was abundantly infiltrated with serous fluid. The left pulmonary artery was entirely occluded at its origin by a homogeneous plug of fibrine, moderately adherent to the interior of the vessel, from which coagula of more recent formation projected into the primary branches. A recent coagulum existed also in the primary branches of the right pulmonary artery, especially in those passing to the lower lobe of the lung, and extended into their smaller subdivisions, without, however, entirely occupying the cavity of any of the vessels. The arteries themselves were healthy. *Abdomen.* The great omentum was converted into a firm roll, lying across the lower region of the abdomen, and closely adherent to the parietes on the left side; the transverse arch of the colon was drawn downwards, so as to remain in contact with the contracted omentum. The outer surface of the intestines, throughout their length, was closely sprinkled with small raised firm spots, of a brownish white matter, about the size of miliary tubercles, scarce any attaining the diameter of a split-pea. Many portions of the small intestines were of a deep blood colour; for the larger portion of their extent, the convolutions were entirely free, but the lower coils were so closely united to one another, and to the sigmoid flexure of the colon, and also to the uterus, as to form one mass, from which it was impossible to separate the several component elements without a long and tedious dissection. The coils of intestine, from their close mutual adhesion, effected such sharp and rapid turns, that it was no easy matter even to trace the continuity of their canal. The coats of all the small intestines were remarkably thickened, resembling soft leather; the mucous membrane, from the stomach to the anus, was loose, and appeared quite healthy. The lower part of the ilium and the colon contained yellow fæces. The liver was pale; the hepatic duct, both in its trunk and its branches in the substance of the liver, was remarkably dilated. The gall-bladder was small; it contained no bile, but its cavity was nearly occupied by a single large calculus. The spleen was small. The kidneys were healthy. The uterus, which was discovered with difficulty amongst the mass of adherent intestines, was healthy, excepting that the tissue of the fundus presented a deep sanguineous stain. The mesenteric and lumbar glands were healthy. The abdomen contained a considerable quantity of straw-coloured fluid, in which floated stringy masses and flakes of fibrine. The right femoral vein, together with the external and common iliac, was quite filled with a soft recent coagulum, slightly adherent. The left common iliac vein was completely occupied by a mass of soft brownish fibrine, entirely without any laminated arrangement, but very closely adherent to the lining membrane; the coats of the vein were considerably thickened; the external iliac vein was filled by a recent blood-clot. The vena cava was healthy, and its lower part was empty of blood. The contracted omentum on section was found to be composed of semitransparent tissue enclosing numerous small lobules of fat; many spots of blood welled up to the surface of the section. An opaque "juice" was readily expressed from all parts of the mass, containing abundance of nuclei, with one, two, or three nucleoli within them; the nuclei had a medium diameter of 1-2000 inch. Only a small number of nucleated cells were discovered. The basement tissue presented imperfect indications of fibrous striæ. Many minute vessels were seen ramifying through the specimens which were examined, especially in the neighbourhood of the lobules of fat.

REMARKS. This case affords an instance of a rare form of disease—primary medullary cancer of the omentum and visceral peritoneum. All the other viscera, both of the thorax and abdomen, together with the glandular system, were free from the disease. The morbid change probably originated in the great omentum, and extended thence over the intestines. The abundance of a thick opaque "cancer-juice", the presence of nuclei to the exclusion of nucleated cells in any important proportion, together with the vascularity of the cancerous tissue, indicated the disease to be of the medullary character.

The previous history of the patient is unfortunately very imperfect, but it appears to indicate immunity from any important symptoms referrible to the abdominal viscera until three weeks before admission, and she continued to follow her usual occupation. The symptoms which then attacked her were probably produced by obstruction to the passage of the contents of the bowels, occasioned by the firm mutual adhesions of the lower coils of the ileum described in the report.

GUY'S HOSPITAL.

A SERIES OF CASES OF INJURY OF THE SPINE.

Under the care of J. Birkett, Esq.

The series of cases appended illustrate many of the points connected with fracture and other injuries of the spinal column, and the effects of those injuries on the cord.

The first case presents the interesting peculiarity of an extensive lesion of the bones above the origin of the phrenic nerves, in which, however, those nerves seem to have been not immediately implicated, and the injury did not prove fatal until after the lapse of thirty-six hours, although the spinal marrow was found after death nearly torn across opposite the junction of the third and fourth vertebra.

The second case is an instance of a pure dislocation in the cervical region, an injury which occurs more frequently in this than in any other portion of the cord. It will be observed, that in this case, although the injury was situated lower down, and the spinal marrow was not directly in contact with the injured bones (the sheath of the cord being uninjured), the nervous matter was irreparably injured, and death followed even sooner than in the former case. In both, the injuries seem to have taken place while the muscular system was in a state of relaxation; in one instance from intoxication; in the other, after great exertion and consequent fatigue. In the latter, the reduction of the dislocation, even had such treatment been possible, obviously could have had no influence on the progress of the case.

In the third case, where the injury was much lower down, an attempt was made to replace the bones; but it did no good, and gave great pain. Still such an attempt is certainly quite justifiable in this region, as there is no probability of producing further injury to the cord; while in the cervical vertebræ it might possibly lead to further pressure on the spinal marrow and to sudden death. Our readers will remember a case which we lately reported (Journal, December 11th, 1858, p. 1022), in which the injury was simple dislocation of the first lumbar from the last dorsal vertebra, and in which reduction was accomplished, though the progress of the case was not apparently affected, the cord having sustained irreparable damage.

In the fourth case, the spinal cord was also damaged beyond the hope of repair; and here the fragments of bone were so moveable, that no permanent change in their position could reasonably be hoped from extension.

The fifth case is interesting, as showing an example of injury to the spine, in which the occurrence of fracture was proved by the displacement of one of the spinous processes; but in which the cord, although so much injured as to produce serious functional disturbance, was not so far disorganised as to lead to organic mischief, and in which the patient recovered. In this case also, evidence of the importance of muscular action in the displacement of the bones is found. The injury occurred while the man was attempting to lift a sack in a stooping position, in which effort the extensor muscles of the spine would be in violent action, while a heavy weight falling on the loins would drive the lumbar vertebræ in an opposite direction to that which the extensor muscles would produce. Hence, perhaps, the occurrence of the fracture, while the fragments would be restrained from that extreme displacement on to the nervous matter, which might have occurred had the muscles been in a state of exhaustion or relaxation. Another instance of recovery after a similar injury, also under Mr. Birkett's care, will be found in this Journal for June 26, 1858, p. 512.

Case I. *Dislocation of the Third Cervical Vertebra, with Fracture.* Richard J., aged 32, was admitted in the evening of November, 28th, 1858, under Mr. Birkett's care. It seems that he fell down stairs, when intoxicated on the previous night about twelve o'clock, and was put to bed in a helpless condition. He was not seen by a medical man till just before admission.

On admission, he was collapsed; his body was completely paralysed and devoid of sensation below the neck; but there was believed to be some sensation in the course of the superficial cervical nerves over the clavicle. His bladder was full. There was great difficulty in breathing. A slight reaction occurred after his admission, and he struggled on till nearly noon on the following day, when he died, having survived the injury about thirty-six hours.

On *post mortem* examination, the muscles of the back of the neck were found contused. The body of the third cervical vertebra was forcibly separated from that of the fourth, and the anterior common ligament ruptured, the body of the third overlapping the one below. The laminæ of the second and third vertebræ were broken on each side, and were moveable. The right lamina of the first vertebra was broken across at its root and near the spinous tubercle. It was probable, from the great amount of movement between them, that one of the joints between the atlas and axis had been opened. The spinal marrow was crushed and nearly torn across opposite the dislocation. The lungs were extremely congested, and the bronchial tubes contained blood and mucus. The other organs were healthy. The body was that of a strong muscular man.

Case II. *Dislocation of the Fourth Cervical Vertebra.* George M'D., aged 17, was admitted, under the care of Mr. Birkett, on November 29th, 1858. He had been fighting with another man for about two hours, and was then thrown to the ground in a struggle. This occurred at about 2.30 P.M. He was found by a policeman some hours afterwards, and brought to the hospital. On admission, he was sensible. The whole body below the neck was paralysed. The breathing was diaphragmatic. Sensation was present at the upper part of the chest, and over the shoulder in the course of the descending branches of the cervical plexus. He was quite sensible, but gradually sank (his breathing becoming more and more embarrassed), and died about thirteen hours after the accident.

On *post mortem* examination, the body was that of a strong young man. The muscles at the back of the neck were much contused and full of blood. The fourth and fifth vertebræ were separated from each other, the ligaments and muscles being torn, but there was no fracture. The sheath of the cord was uninjured, but the medulla was quite soft and full of blood—crushed into a red diffluent mass. The lungs were extremely congested, blood was effused into the tissues, and the bronchial tubes contained blood. The other organs were healthy.

Case III. *Fracture and Dislocation of the Eleventh and Twelfth Dorsal Vertebræ.* Patrick D., aged 31, a stout muscular Irishman, was admitted, under Mr. Birkett's care, on October 2nd, 1857. He had fallen down the hold of a ship. A ladder broke his fall, and he came down on to the flat of his back. He was unable to move after the accident, and had entire loss of power and sensation in both lower extremities.

The seat of injury was found to be the eleventh or twelfth dorsal vertebra. The fascia was completely torn off several of the dorsal spines. He was suffering intense agony, and quite unable to move his legs. He was seen shortly after admission by Mr. Birkett, who ordered him to have extending force applied under the influence of chloroform. This, however, had no immediate effect on the paralysis, and gave great pain. Laudanum was given, but he passed a very restless night. On the 5th, he was found to have slight sensation in the lower extremities, but could not move either. He suffered intense pain on the slightest movement, but was cheerful and had a good appetite. The bowels had not been open since the accident. The urine was drawn off night and morning.

During the next few days, he complained of burning sensation in the legs, and was very restless and uneasy, so that it was necessary to give him three grains of opium on the 13th. This afforded much relief, but the bowels were obstinately costive till relieved by croton oil. He was then free from the costiveness, but during the next month bedsores formed, he became weaker, and lost his appetite. The urine was highly ammoniacal. He continued to sink during the month of January, principally, as it seemed, from the discharge of the bedsore, and died on February 13th, having survived the injury four months and a half.

On *post mortem* examination, the bodies of the eleventh and twelfth dorsal vertebræ were completely separated; and the spinal cord opposite this region was soft, broken up, and of a brown tint. There was no fracture of the bodies of the vertebræ, but the articular processes were fractured. The displacement was not very great. There was a large sore over the sacrum exposing the bone, and at this part the canal was laid open, but there was no evidence of disease having extended upwards from this spot. The kidneys were both found to be in a state of extensive suppuration.

Case IV. *Fracture and Dislocation of the Twelfth Dorsal Vertebra.* Frederick S., aged 20, a labourer, was admitted on May 20th, 1858. He had fallen from a ladder through a trap-door; and, on being raised, he found that he had no use in either leg, and, on attempting to walk, it caused him great pain in the back. When admitted, both legs were paralysed, and the sensitive nerves below the knees, except on the calves. He had great pain in the lumbar region, and there was much constitutional disturbance. He could not pass his urine. He

had no sleep that night; the tongue next day was moist, but inclined to be brown; the pulse was regular, but feeble; he perspired freely. He complained of great pain, extending from the back down to the hip, which he described as "like a knife stabbing him".

May 22nd. He had had no sleep, and had vomited several times during the night. The bowels had not acted. Soda water and brandy was given. He continued to get worse during the next four days. The countenance became haggard; he was half insensible; the tongue brown and dry; the skin hot and parched; the breathing somewhat hurried. He complained of pain in the region of the kidneys, and the water contained blood. He could get no sleep without large doses of opium. Nourishment was freely given, and his sufferings were somewhat alleviated by opium; but he sank from day to day, and died on May 31st, the eleventh day after the accident.

On *post mortem* examination, the body of the twelfth dorsal vertebra was found crushed, separated into two parts, and torn away from that of the eleventh. The arches also were broken. The parts were quite moveable; but there was not much displacement, as the anterior common ligament was still entire. The medulla was crushed, inflamed, and soft opposite the injured vertebra. The lungs, kidneys, and peritoneum, were healthy. The bladder was much inflamed, ulcerated in parts, and covered with phosphates.

Case v. *Fracture of the Spine about the Eleventh Dorsal Vertebra: Recovery.* John P., aged 29, a labourer, was admitted under the care of Mr. Birkett on November 26th, 1858. He was a healthy man, and not addicted to drinking. He was working in the hold of a ship, and, while in a stooping position, and attempting to lift a sack, another heavy sack, weighing about 2½ cwt., fell from a height of eight or nine feet, striking him on the loins, and throwing him down. The head was not struck. On attempting to rise, he found that he had no use of his lower extremities, and could not feel his legs at all. On admission, he was perfectly paralysed in the lower extremities, and complained of pain in the loins and nates. The right knee was contused, swollen, and painful on pressure. There was either absolute or comparative hyperæsthesia in the whole of the right leg, it being very sensitive to the least irritation, such as slightly pulling the hair upon it. The left leg had no sensation in it. He was obliged to have his water drawn off, but could retain his motions. He was quite sensible. Goulard lotion was applied to the knee. Beef-tea and arrow-root were given. Next day, there was a little more sensation in the left leg, and the right was not quite so sensitive: indeed, the injury to the knee seemed quite sufficient to account for any excess in sensation. He had not slept during the night. The pulse was quiet; the tongue clean. There was much thirst. He was conscious of the bladder being full, but unable to pass water. The urine was ammoniacal, and rather thick from admixture of mucus. The calf of the right leg was very tender, owing to a varicose vein.

November 29th (third day). Sensation was quite perfect in both legs. The bowels were costive, so that purgatives had to be given.

December 1st. The bowels were still costive; the bladder was injected with tepid water twice a day.

December 4th. It is noted that he felt pain in the loins when the bladder was quite full, and that the right knee was somewhat painful. The pulse was firm and good. He lay on a spring bed. The back was quite comfortable.

December 10th. Sarsaparilla with bichloride of mercury was ordered.

December 14th. He felt occasionally "a shooting and starting" in the legs, and the knees were sometimes drawn up suddenly.

On the following evening, when the bladder was full, he succeeded in passing some water by his own exertions; and, on December 17th, it is noted that the water was passed quite voluntarily. The treatment consisted in tonics (steel, quinine, and calumba), with opium at night. He complained occasionally of pain in the belly and loins, which was relieved by aperient pills; but on the 28th, as he still had a good deal of pain in the loins, he was ordered calomel and opium every six hours.

January 2nd, 1859. It was first noticed that he was able to move his toes slightly; those of the left foot the most; and on January 7th (fifth to sixth week), this movement was found to be improving. He was now turned on his face, to examine the back. The spinous process of the eleventh dorsal vertebra was found to be much displaced, and drawn upwards to the one above it, and considerably to the right side. This was the only deformity to be detected.

January 12th. He was able to move the left instep, and the movements in the toes of the right foot were stronger. He had still much pain in the loins. The bowels continued to be costive. Two grains of opium at night were required to produce sleep.

January 17th. He could move both insteps freely. He was ordered quinine mixture, full diet, four ounces of sherry, and two pints of porter, daily.

January 21st. He could bend his left knee, and draw the limb up to the body; but he could not straighten it again. Soap liniment was ordered.

February 5th. It is reported that, for the last two or three nights, he had been disturbed by the left leg jumping just as he was going off to sleep. The right leg did not move much. He still suffered a good deal of pain in the back.

After this date, he slowly improved; but, as he did not progress so rapidly as he could wish, he left the Hospital, in ill temper, March 5th, 1859.

Original Communications.

THE VEGETABLE PARASITES OF THE HUMAN SKIN.

By Jabez Hogg, Esq.

[*Read before the Medical Society of London, January 24th, 1859.*]

I propose on the present occasion—*first*, to offer a hasty sketch of the history of parasitic vegetable growths in diseases of the human skin; *secondly*, to inquire into the truth of the theory founded on the observations of foreign physicians, which attributes certain forms of skin-disease to the ravages of a vegetable parasite, as their origin, cause, and pathognomonic character; and *thirdly*, to offer a few remarks on the natural history of vegetable parasites, with a view to illustrate the subject by analogy.

It is now more than twenty years since Bassi of Milan discovered the vegetable character of a disease which caused great devastation among silkworms; and, about the same time, Schönlein of Berlin was led to the detection of certain cryptogamic vegetable formations belonging to the order *Fungi*, accompanying the development of certain diseases of the skin. The observations of this distinguished man have been confirmed by Gruby, Remak, Langenbeck, Robin, Küchenmeister, and other continental writers; as well as by Dr. Hughes Bennett of Edinburgh, and Drs. Jenner, Gull, and other English physicians, most of whom have attempted to identify the fungus with the disease believed to be produced by it, and in this way to separate and detach some four or five of the most common chronic skin-diseases from the rest, and to regard them simply and exclusively as *fungoid* or *parasitic diseases*. Thus the parasite supposed to be peculiar to and productive of each disease has been minutely described, and honoured with a name derived generally from the name of the disease which it is supposed to have originated, as appears in the following table.

Willan.	Basin.	Wilson.	Parasite.
Porrigo favosa and lupinosa.	Tinea favosa.	Favus.	Achorion Schönleinii.*
Porrigo scutulata.	Tinea tonsurans.	Trichosis furfuracea.	Tricophyton tonsurans.
Porrigo decalvans.	Tinea decalvans.	Alopecia.	Microsporon Audouini.
Mentagra	Tinea sycosa.	Sycosis.	Microsporon mentagrophytes.
Pityriasis versicolor.	Pityriasis.	Chloasma.	Microsporon furfur.

* From *achor*, the old term given to a favus crust by Willan, and the name of the discoverer Schönlein, and so on with all the rest.

This very tempting theory involves an important principle of pathology, inasmuch as it places the pathological fungi above described in a category by themselves, and invests them with characteristics entirely at variance with those of the natural history of the family of fungi, whose leading feature appears to be that of selecting disease and decay as the soil which is essential to their existence; whereas this hypothesis describes them as preying upon healthy organised matter, and thereby establishing specific diseases.

In examining into the truth or fallacy of this theory by the light of physiology, we must bear in mind that the surface of the human body is supplied with a delicate covering, one office of which is to excrete, and another to eliminate or exude, effete matter from the blood. The excretion consists chiefly of microscopic epithelial scales; and the exudation is composed of gaseous matter, which sometimes becomes condensed and dried on the surface of the epidermis. The scales are friable and separable under very slight friction during health; and the transpired fluid makes its free escape, under ordinary circumstances, without any assistance from without. But want of cleanliness, deficient exercise, and, much more frequently, a cachectic condition of the fluids of the body, interfere with the natural processes of elimination; and then the skin becomes diseased, and in this diseased condition is often infested with parasitic fungi, the filaments and spores of which are found imbedded in the epithelial scales of the epidermis, enveloping the hair-bulbs, and often traversing the hair itself, which is then more or less abnormally secreted, and deficient in organic matter.

Is this diseased condition the result of the ravages of the parasite? or is the parasitic vegetation the result of disease? This is the question into which I now propose to enter, and the question is one of some practical importance; for, if the disease is produced by the parasite, we have only to destroy the latter, and the disease will be perfectly eradicated, and cease. If, on the other hand, the parasite only acts the part of a scavenger, whose effect it is to remove the *materies morbi*, then we have to rectify the condition on which the disease depends, and the parasite will starve for want of nourishment.

Authorities are not wanting on either side of the question. Dr. Hughes Bennett maintains that all such vegetable formations are secondary, and always arise in living animals previously diseased. Dr. Gull contends, on the contrary, that the parasite is the sole cause of the disease; and Dr. Jenner has committed himself to the same opinion. Mr. Wilson differs again, and entirely ignores the existence of vegetable parasitic growths in skin diseases; and endeavours to prove—somewhat imperfectly, I think—that the cylindrical tubes "seen under the microscope are nothing more than a splitting up of the middle or fibrous layer of the hair, and its oval shaped cells, closely packed together, and arranged in a linear order." Had Mr. Wilson submitted his specimens of disease to a closer examination, and employed polarised light with the microscope, I have no doubt he would have convinced himself that his view of the diseased hairs was not quite correct.

The question, however, must be determined, not by authorities, but by further observations.

During the last two years, with a special view to this question, I have been engaged, with my friend Mr. Hunt, in making microscopical examinations of the products of cutaneous diseases appearing in the patients attending his practice at the Western Dispensary for Diseases of the Skin; and the result is, that I feel strongly inclined to the opinion that the vegetation found on the skin and hair is not primarily the cause, but rather the result, of disease.

I will now endeavour to show on what grounds this conclusion has been arrived at.

1. If there be any exceptions to the general law, that parasites select the subjects of debility and decay, such exceptions are not found among vegetations belonging to the order *fungi*, which invariably derive their nutriment only from matter in a state of lowered vitality, passing into decomposition, or wherein decomposition has already proceeded to some extent.

2. That the growth of these fungi is not necessarily pathognomonic of a special disease, is obvious from the fact of their having been observed in nearly all kinds of chronic skin-disease. Thus, out of twenty cases of lepra and psoriasis, in which the products were examined, evident traces of fungoid vegetation were observed in ten. The same growth was noted in two out of three cases of lichen, also in four out of six cases of eczema, in one case of ichthyosis, and in one of spilus. None of these diseases have been supposed to be caused by fungi; and yet fungi were present in the greater number of the specimens examined.

3. Others observers, some of them highly competent, have not been able to find them in the diseases they are believed to engender. Thus Malherba, Cazenave, and Wilson, deny the existence of a vegetable fungus in porrigo scutulata (the common ringworm), although this is described and depicted under the name of *tricophyton tonsurans* by trustworthy observers. Cazenave, Didot, and Wilson, deny the existence of the *archorion Schönleinii* in favus or cupped ringworm. Wilson and Cazenave deny the existence of the *microsporon Audouini* in porrigo decalvans. In reference to the statements of the latter observer, Cazenave, it must be borne in mind that he candidly acknowledges his ignorance of the microscope; and, not to make an unfair use of this negative argument, I must confess that I have seldom been disappointed in finding some kind of fungoid growth in all the diseases supposed to be produced by them. Nevertheless, such is the general similarity of form and growth of the fungi in the specimens examined, that I have failed to make out any relation between the special variety of parasite and the particular disease whose name it bears. Thus, in a case of porrigo in a girl of 16, which had existed for nine years, from neglect and dirt, I found, not a porriginous variety, but the fungus described by Robin and Küchenmeister as peculiar to plica Polonica—a disease almost unknown in this country. Again, in a case of *tinea tarsi*, I found sporules of the fungus described by Ardsten as the *puccinia favi*. Robin also found in favus the puccinia occurring together with the *Achorion Schönleinii*; the latter presenting itself as a constituent of the cups or crusts, while the puccinia occurs afterwards on the desquamation of the epidermis. And this is thought by some to warrant the opinion that the *achorion* is only the spermagonial form of the *puccinia favi*. But, further, it is broadly asserted by others that the several morbid conditions observed in chronic diseases of the skin are mutually convertible; and that lichen, eczema, impetigo, psoriasis, lepra, mentagra, etc., are but modifications of one and the same disease, resulting from accidental conditions, and not always found perfectly distinct: nay, so often are they combined and complicated with each other, that dermatologists have assigned special names to some, indicative of their mixed character, such as eczema *impetiginodes*, eczema *leproides*, lichen *urticatus*, erythema *papulatum*, etc.

It may be said, that most of the cases examined by Mr. Hunt and myself should be referred to the last named forms of disease; and, therefore, the finding of parasitic fungi might have been, *à priori*, expected; indeed, ought to have been found. Having had this contingency in view, Mr. Hunt gave me specimens taken only from well marked cases; and the morbid products of these were conjointly examined and sketched under the microscope; well executed drawings from which were made by Mr. Arthur Hunt, for the purpose of illustrating this paper.

The objects were examined both wet and dry, with reflected and with transmitted light, rendered achromatic and carefully arranged to avoid error by distortion, etc., and with a magnifying power of from two hundred to four hundred diameters in almost every case. The products were obtained, in scaly diseases, by gently removing the half-detached scales; in most eruptions, by simply placing the discharge on a slip of glass; in diseases of the hair, either of scalp or beard, by uprooting the hairs, and examining with as little disturbance as possible.

I will now enter on a short analysis of the cases examined.

Favus. At the head of my list stands favus—a disease better known to continental writers than to us, and said by them to be caused by the *achorion Schönleinii*. In this country it is so rarely seen, that neither at Mr. Hunt's Dispensary nor in private practice have I been able to meet with a case for examination; so that this disease, which we find most carefully described, and the vegetable nature of which Schönlein has the merit of having been the discoverer, as also of exhibiting the fungus in the form of mycelium filaments and granulated stroma,—I am compelled to dismiss with this brief notice.

Alopecia (*Porrigo Decalvans*). In eleven cases of alopecia, the hair on the margin of the bald patch was submitted to examination under the microscope. In three of these cases, one of which was the product of syphilis, no fungoid growth could be found. In the other eight cases, filaments and sporules were most unmistakably present.

Porrigo Scutulata (*Tinea Tonsurans*). In nine cases of porrigo scutulata, the hair was examined. Fungoid vegetations, or vestiges of them, sometimes with sporules, sometimes without, were observable in each of these cases, but in three of them they were imperfectly developed.

It may here be observed, that the filaments of the *trycophyton tonsurans*, said to be the cause of this disease, are described as found in the substance of the roots of the hair, and spreading longitudinally upwards; whereas the *microsporon Audouini*, the supposed source of the porrigo decalvans, forms a tube round each hair *outside* the follicle, not in the substance of the hair. I have not been able to verify these distinctions. On the contrary, on comparing many specimens of these diseases with each other, I have always found filaments springing up from the bulb, and then growing up around or along the hair, sometimes longitudinally in bifurcating branches nearly straight, sometimes in tortuous or spiral forms, with or without spores. In both diseases, the bulbs of the hairs and the hair itself were variously decayed and deformed.

Pityriasis Versicolor (*Chloasma*). Seventeen cases of this disease contributed specimens for examination, in *all* of which vegetations were observed, and in several of them the fungus named *microsporon furfur*, supposed to be the cause of the disease, was clearly identified. This fungus is said to have been discovered by Eichstädt in 1846, and is described as exhibiting spores piled up in groups or heaps; and, although Robin himself could not find this parasite, I acknowledge that the characteristic grouping of the spores has been distinctly marked in most of the specimens I have examined. But, although this piling up of the spores may be in some measure identified with the disease, it does not follow that the disease is caused by the fungus, which may merely find in this form of disease a suitable soil for its growth and fructification. The fungus may be destroyed again and again by soaking the skin with a nitrous acid or mercurial lotion; but, unless attention is paid to the state of the blood, no lotions will cure the disease.

Mentagra (*Sycosis Menti*). The hairs were examined in six cases of this disease, and in all were broken or bent, and covered by fungoid growths. The roots of the hairs were closely invested with spores and filaments, sprouting longitudinally outwards and upwards. Both the filaments and spores are described as larger than those of the *microsporon furfur*, and they are said to form a sort of vegetable sheath to the hair below the skin only. This latter description is graphic and true; but I should hesitate to admit that the mere *size* of a vegetation can entitle it to be considered a separate species; for it may depend on the age, the growth, or on some peculiarity of the soil, just as the *polypodium filix mas*, or common male-fern, may appear in a dry barren soil as a delicate plant, and yet, in a damp and shaded situation, with a congenial soil, it may assume the appearance of a gigantic shrub, several feet in height. Moreover, the hair itself, as well as its follicles and root, was found in several instances, exhibiting tufts of fungi growing on its surface.

Psoriasis. Thirteen specimens were examined. In seven of them, filaments and sporules were clearly discernible; in the other six, epithelial scales only. These filaments and sporules were in no respect distinguishable from those found in the various diseases already described, and to which they have been said to be peculiar.

Lepra. Seven specimens were examined: there were found filaments and sporules in five of them, and in two of them epithelial scales only. These vegetations also were similar to those found in psoriasis—another name, in fact, for the same disease.

Ichthyosis. In one case of this disease, filaments were found, clearly showing that a congenital disease or malformation may, under certain circumstances, prepare a soil for fungoid growths.

Lichen. In two cases out of three, fungoid growths were visible, similar in character to those already described.

Spilus. In two cases examined, one exhibited very fine hairs, with peculiar masses of a fine pigment surrounding the shaft of the hair, and others were covered by granular matter; another had filaments of a fungus, with a few spores scattered over the masses of epithelial scales.

Eczema. In four out of six cases, fungoid appearances were observable; in one of them also were masses of spores; and in another a cast of a hair was observable, the hair having escaped, and the cast being composed of beautiful filaments, which had embraced and encircled the hair precisely after the fashion described in porrigo decalvans, although there was here no baldness. In fact, the arms, and not the scalp, were the seat of the disease.

Tinea Tarsi. In five cases of tinea tarsi, two out of which were associated with eczema in children, in three were found mycelia, filaments, and spores, associated with epithelial scales and granular matter; in one, an isolated spore of a fungus, described by Ardsten as that of *puccinia favi*, the spores of which are almost if not quite identical with those caught on my glass slides suspended in the air.

As to the growth of these parasites on the *healthy skin*, most conclusive experiments have been made, the results of which go far to prove that the skin of persons in health and vigour does not afford the required conditions for them to take root in it; that inoculation succeeds only in those places where pustules have been previously formed. Remak and others repeated the experiment of inoculation over and over again, and found that it always failed in the healthy; but that in certain exudations, in peculiar states of the constitution, or where disintegrated matters existed which had undergone particular chemical changes, the *achorion* might be made to germinate, and produce a further growth of that identical fungi.

Seeing, then, that the fungi are characterised throughout nature by feeding on effete or decayed matter; that the fungi supposed to be peculiar to certain diseases of the skin, are also found in many other diseases of the cutaneous surface; that competent observers have not been able to find them in these peculiar diseases; that sporules and filaments described as the cause of one definite disease, have been found in the products of another definite disease supposed to have a peculiar and distinct parasite of its own; and that attempts have been made in vain to implant these parasites in a healthy skin; one cannot but conclude that special parasites, peculiar to, and productive of, special diseases, *do not exist*. And in this opinion we are, at least, confirmed by the therapeutical fact, that the alleged parasitical affections are rarely, if ever, cured by destroying the parasite; and that they *can* be cured by the due administration of appropriate alteratives and tonics which are capable of correcting the blood dyscrasia, which, in fact, originates the disease.

These views are countenanced by distinguished pathologists. Professor Bennett writes of favus: "I believe that the pathology of favus is best understood by considering it essentially to be a form of abnormal nutrition, with exudation of a matter analogous to, if not identical with, that of tubercle, which constitutes a soil for the germination of cryptogamic plants, the presence of which is pathognomonic of the disease. Hence is explained the frequency of its occurrence in scrofulous persons, and among cachectic or ill-fed children; the impossibility of inoculating the disease in healthy tissues, or the necessity for there being scaly, pustular, or vesicular eruptions on the integuments previous to contagion." And in some few experiments wherein it has been said that inoculation has succeeded in healthy persons, the following explanation may be offered, "that the material in which the vegetations grow, may at the commencement, in a molecular exudation, be formed either primarily or secondarily. That is, there may be want of vital power from the first, as occurs in scrofulous cases; or there may have been production of cell forms, such as those of pus, or epidermis, which, when disintegrated and reduced to a like molecular and granular material, secondarily constitute the necessary ground from which the parasite derives its nourishment, and in which it grows." (*Principles and Practice of Medicine*, page 807.)

Very nearly the same conclusions have been arrived at with regard to the propagation of the moulds among the vegetable tribes, which at one time it was said were originated by fungi. Mr. Henfrey, writing of the development and progress of vine-fungus, says, "that it is the cause and not the consequence of the *murrain*"; nevertheless, with some caution or suspicion of the truth, he adds, "there are various curious circumstances connected with it not at all understood, and it is very probable that peculiar atmospheric conditions induce predisposing states of the plants."

It scarcely admits of a doubt, that all the diseases observed of late years on plants, have been produced by a peculiar atmospheric condition, not yet understood, but which, when combined with want of vigour, or, in other words, unhealthy growth, arising from the loss of some chemical elements in the soil, that this has been the cause of the various "murrains", of which we have heard so much. It is a fact, now well known to microscopists, that during heavy moist, and other uncomfortable atmospheric conditions, the spores of various fungi can be caught by merely exposing a slip of glass in a current of air; but when the air is fine and dry, in that state usually recognised as bracing, in other words, favourable to health and life, then the fungi and their spores are very difficult to collect, and, perhaps, are not then floating about. Similar causes may, doubtless affect the microscopic characters of the products found in skin diseases; and so similar in appearance are the fungi

taken in the air to those found among plants and decaying vegetable matter, that with a power of three hundred diameters we readily detect a striking analogy between them. The *achorion Schönleinii* in particular, and many of the vegetable moulds recognised under the generic terms of *penicillium* and *aspergillus*, very closely resemble each other—in fact, are forms of the same family of fungi. The botanical characters of the *penicillium*, one of the commonest of the fungi forming and spreading itself as a greenish mould on decaying vegetable substances of all kinds, may be summed up in a few words. It simply consists of a mycelium of interwoven filaments, articulated and terminating in a plume-like head of minute globular spores, yellowish or bluish in colour according to age. The *aspergillus* of Greville differs only in some slight particular, the form of its spores, which are ovoid. These are borne in erect filaments, and terminate in irregular tufts. If the spores of either are sown on a glass slide and kept slightly moist, they quickly germinate, and their habits may be readily studied. On living plants they are more familiarly recognised by such names as *smut*, *brand*, *bunt*, etc. I have seen them converted into algæ, and grow in distilled water; and the mushroom spores differ only in size, being larger.

"Wonderful is the minuteness of the origin of these cryptogams; and when their spores find a proper nidus, wonderful is their development. The old sawn stump of a tree after a warm rainy night and showery day in autumn, will be found covered with agarics. We have seen a spotless verdant meadow in Glamorganshire covered within forty-eight hours with puff-balls, most of the individuals were as large as a man's head, and none were smaller than that of a child. Think of the power of cellular development able to produce such monsters in so short a space of time, from invisible particles of 'puff-snuff.' Such a development of this fungus is by no means unusual." (*Frazer's Magazine*, January, 1859.) We are told of snow covered countries being changed in a night from white to red by a *gory dew*, the *protococcus nivalis*, (red snow) of the northern regions. The muscardine of the silkworm is precisely similar to the species of fungus which infests the potatoe, the mycelium and sporules of which appear on the respiratory surfaces, when its fluids become acid. Again, the *mycophyton Cohnii*, found in the blood of the house-fly, appears externally as a mould; the first symptom observed is a milky appearance of the blood, and there is no doubt that an acid condition precedes or accompanies the production and growth of the *oidium* in muguet or thrush, as well as of vegetable parasites in skin-diseases.

The parasitic fungi found on animal structures resemble these and each other so closely, that it would be sufficient for my purpose to say that these also consist of cylindrical or flattened filaments, terminating in sporangia enclosing spores. But, to be more accurate, the following are the botanical characters of the *achorion Schönleinii* given by Robin. "The mycelium is soft, pellucid, floccose, filaments very slender, not jointed, very much branched, mostly fixed in a granular stroma; receptacle formed of thicker filaments composed of elongated cells somewhat branched, distinctly articulated, joints unequal, irregular, terminating in a sporidium; sporidia, round, oval, or irregular, germinating at one or several joints. It is closely allied to the *oidium*." The *microsporon mentagrophytes*, he says, differs from the *microsporon Audouini* only in the size of its filaments, and their ramifications; and the spores are somewhat larger. So that, whether we turn to animal or vegetable produced fungi, we are struck with the great resemblance they bear to each other. Another fact, which may in a degree account for the ravages of the fungi (a fact of great interest to the naturalist), is that the whole tribe give out carbonic acid and absorb oxygen, and they all contain a large proportion of nitrogen.

It cannot be denied that the single fact of the universality of distribution of the fungi, is of itself a very strong argument in my favour, and leads to the belief that they are ever ready to fix themselves where disease has set up disorganisation, or where, from other circumstances, the powers of life have become enfeebled. Should it not be as I have stated; then I maintain it still remains to be ascertained, how great a share these microscopic parasitic organisms have in the causation of disease.

But if we now turn to the etiology of cutaneous diseases, we find this simple fact; that when the spores of the fungi have become fixed, they take their food from the tissues (soil) which surround them, and perhaps extrinsically from the surrounding medium (the air); and the fitness of the soil is doubtless increased by humidity, which greatly assists in their germination, and is particularly favourable to all parasitic growths. Do we not find here also, an example of the law which must be obeyed, in the lowest forms of vegetable life as in the highest, whenever plants are to prosper; viz., "the choice of the locality depends upon the peculiar properties of the soil sought for or avoided by the various species of plants"? The species to which our attention has been particularly directed, make choice of the animal cutaneous surfaces; and a knowledge of all the circumstances which favour their growth, may enable us to arrive at some general theory of the treatment to be adopted. It appears that we have chiefly to look to a change in the soil in which they grow, and to bring that to a state in which they cannot thrive, to ensure the destruction of these parasites. What, may I ask, has been already done to effect so desirable an object?

Mr. Hunt's experience—and this has been very large—proves that, as a rule, we must not rely upon local applications to effect the cure, or even arrest the disease, without at the same time endeavouring to produce a blood-change. To improve the general health is also of the very utmost importance, and this can only be done slowly and by the most judicious application of our remedies. Perhaps, the best of all our therapeutic agents to employ in these diseases, one indeed based upon scientific data, both pathological and chemical, and for the safe and effective administration of which we are indebted to the researches of Mr. Hunt, is arsenic and its preparations. This drug appears to be a specific for most of the forms of skin-disease of which I have been speaking, although it is not always essential; for some cases of porrigo, mentagra, etc., even when infested with their parasites, have yielded to cod-liver oil, preparations of iron, with purgatives or alteratives, as the case may require, without any topical application whatsoever.

In conclusion, I have to call attention to the fact that there is no natural phenomenon more curious than that of parasitic life, both animal and vegetable. We find even the earth-worm haunted by a parasite (*gregarina*) living within and upon it; and numerous mollusks and insects with entozoa pertaining to each. It is not an anomaly we look upon, but a part of creative intent; an expression of that great design which makes organised life in one form everywhere subserve to the maintenance of another. Minute though these objects are, and inaccessible to all unaided sense, there is no part of natural history which strikes deeper roots into the secrets of the living creation.

Their universal distribution over the face of earth, air, and water, undoubtedly points to design; and it will be found that the fungi have a purpose to fulfil in the economy of life; and so far from being parasitic pests, as some look upon them, these, the lowest and earliest forms of life in the vegetable kingdom, have been from the beginning designedly intended to be what they certainly are, useful scavengers in creation: and thus ever are they to be found growing among disease and death, for no other purpose than that of removing all festering matters from the presence of the living, which if allowed longer to remain, must prove alike destructive to health and life.

Here also is presented for our admiration, a striking and curious example of the ever varying phases of life, and its resurrection from the ashes of decay and death. Nothing is allowed to remain idle, useless, or uncared for, in all the wonderful changes which are ever at work around us for the good of the whole, and for the purpose of maintaining this spot of earth in a state fit for the whole families of God's creatures. "All things indeed work together for their good"—and yet is the one fact constantly obtruding itself to our gaze; "that life is inseparably linked with change, and that every arrest is temporary death; and that only through incessant destruction and reconstruction can vital phenomena emerge;—an ebb and flow of being."

CASE OF PLACENTA PRÆVIA.

By Charles P. Stevens, F.R.C.S., Biggleswade.

I was requested to see Mrs. Davis on February 26th, four miles distant, and arrived there at 2 P.M. She is the mother of four children. She told me that, for six weeks past, she had suffered more or less from sudden and great losses of blood, and for that period had not been free from hæmorrhagic discharge at any time. The full term of gestation was expired. Pains came on an hour before I arrived. They were now slight, and occurring about every ten minutes, with profuse hæmorrhage going on. The vagina was full of clots; the os uteri was

dilated to the size of a florin; the placenta was *centrally* presenting; and the posterior portion was *partly* detached from the cervix. The fœtal presentation was unknown. I plugged the vagina with lint saturated with cold vinegar and water, and applied napkins dipped in cold water to the vulva; and gave directions to the nurse to use pressure with her hand on the perinæum, especially during a pain. Six hours afterwards, at 8 P.M., I removed the napkins: there was no hæmorrhage. I administered a stimulant, and proceeded to remove the plug. Little or no hæmorrhage occurred, and very few small coagula followed. The os uteri was now dilated to the size of a small teacup, and very dilatable; the whole circumference was covered with placenta. I then adopted Dr. Barnes's method, by separating the *whole* circumference of the placenta from its uterine attachment as high up as I could reach with my index and middle fingers, having found it necessary to pass my hand gently into the vagina, from the os being highly situated. I did not resort to the plug after this, but waited. Pains continued regularly; there was no more hæmorrhage. On my next examination, I felt a portion of the posterior part of the placenta protruding through the os. I then felt for the presentation, but could not detect it until, by further separating the posterior portion of the placenta, I reached the membranes, and found it a footling case. I then immediately ruptured the membranes (a great quantity of liquor amnii escaping); and, pushing the posterior part of the placenta towards the anterior surface of the uterine cavity, I succeeded in seizing one foot, which proved to be the right; and with gentle traction secured it at the external orifice, though with the toes to the mother's abdomen. The strength of the mother and her good pulse induced me to attempt to save the child by delivering with one foot, as recommended by a certain high authority. Pains continued regularly; and, gentle traction being used, I gradually rectified the position of the child *in utero*, by rotating the thighs and pelvis so as to bring the toes towards the sacrum of the mother. Presently, the breech and the other leg were delivered: the umbilical cord still pulsated, and I, acting a little more briskly; the trunk, arms, and shoulders, were expelled, and, by depressing the chin and elevating the occiput, the head quickly followed, quite unattended with any amount of hæmorrhage. During this period, external pressure was kept up. The child sobbed slightly; and, on pursuing Dr. Marshall Hall's plan for resuscitation, it very soon gave auricular demonstration that it was alive: I then separated the funis. The mother's pulse flagging, I administered another small quantity of brandy; and, on passing my finger along the funis, I found the placenta detached, and lying in the vagina. By moderate traction, and making her use slight expulsive efforts, it came away with the membranes entire, and little or no hæmorrhage. On removing a few coagula from the vagina, I found the mouth of the uterus firmly and securely closed. The placenta was of the usual size; about a fourth of its maternal surface was dark coloured, with clots adhering, indicating where premature separation had taken place. I then proceeded to bind up the abdomen, and administered a drachm of tincture of opium, and left her to repose. In an hour's time, she complained of feeling faint. I administered a dose of ether and sal volatile, and saw her again before I left, when she was comfortable.

February 27th. I found the patient comfortable. She had passed urine twice. The lochia were going on, and not in excess. No further hæmorrhage had occurred. She complained of feeling light headed, and wanted sleep. I repeated the laudanum.

February 28th. She was going on favourably.

March 1st. She was going on favourably, except complaining of want of sleep. I ordered her to take ten minims of liquor opii sedativus at bed-time, and a dose of castor oil in the morning.

March 2nd. The pulse was quiet. The bowels had acted. The opiate procured rest. Light and nutritious diet was ordered. The mother and infant were doing well.

March 3rd. In every respect, the patient was going on satisfactorily. She had suffered very little from after pains. There was a good secretion of milk. The lochia were normal in quantity. Beef-tea was ordered.

Remarks. By the use of the plug in the first instance, to gain time for more full dilatation, and then employing the means recommended by Dr. Barnes, there was much less hæmorrhage than I have witnessed in most cases of ordinary labours. The loss from the introduction of the plug to the completion of the labour, I can assert did not exceed eight ounces, if so much.

Transactions of Branches.

BIRMINGHAM AND MIDLAND COUNTIES BRANCH.

THE VITALITY OF THE TEETH, AND ITS RELATION TO CARIES.

By Thomas Howkins, Esq., Birmingham.

[*Read February 10th*, 1859.]

Mr. President,—I feel somewhat diffident in bringing before the notice of your Society any remarks connected with the physiology and pathology of the teeth. Not that the subject is by any means a barren or uninteresting one, but because, from some reason or other, it seems virtually to have been shelved by the great majority of medical men, or consigned over *in toto* to the care of the practitioners of dental surgery. It has often been a matter of regret to me that such should be the case; and frequently in practice I have seen the ill effects resulting from this neglect of the subject by medical men, in a want of that general knowledge of the various symptoms and effects to which certain diseases of the teeth are liable to give rise. It is no part, however, of my intention to bring before you anything relating to the diagnosis or therapeutics of the diseases coming within the domain of dental surgery, but rather to present for your consideration some thoughts relating to the vitality of the teeth, and the part this plays in that pathological condition known as dental caries. This question of the vitality of the teeth has been a more fertile source of controversy than has perhaps any other in dental physiology, and certainly there is none which has given rise to more erroneous theories of dental caries. Perhaps, at the outset, you will just allow me to recall to your recollection the three component elements of the teeth—the enamel, cement, and dentine, each of which differs from the others in structure, vitality, and function.

The *Enamel*, or outer covering, which is the least organised of the three, contains only about 3½ per cent. of animal matter, which is built up with the calcareous salts into the form of parallel prismatic fibres, arranged vertically to the surface of the tooth. It appears to be totally devoid of sensibility; and no provision, so far as the microscope has yet revealed, is made for its nutrition; and whether, when once fully formed, it remains so to the end of its existence, or, like the more vital structures, has its component molecules removed from time to time, and their places supplied by fresh matter, is a point we cannot at present determine.

The *Cement*. This is the structure which forms the outer covering of the fang, and is the most highly organised of the three. In intimate structure, it very nearly resembles bone: in fact, the cement from the tooth of an animal, according to Tomes, bears a pretty constant relation to the bone of the same animal, especially in the shape of the corpuscles or cells. Whenever found in sufficient thickness, it is, like bone, traversed by vascular canals. It forms the bond of vital union between the denser unvascular constituents of the tooth and the bone in which it is implanted.

We come now to the *Dentine*, or proper tooth-substance, which makes up the great bulk and body of the tooth, giving to it its peculiar shape and size. It is composed of a mass of tubules, united together by an "intertubular substance"; the tubules radiate from the central pulp-cavity, have an undulating course, and in general direction are vertical to the surface of the tooth. The walls of these minute tubules are composed of organic incorporated with calcareous matter; the tubules themselves, in the healthy state, are usually empty, though sometimes they may contain minute granules. With regard to the vascularity of the dentine, using this term in the ordinary sense, as signifying the permeation of a structure by vessels carrying red blood, we must pronounce it unvascular, though the opposite of this view was maintained by Fox, Bell, and others, and is at the present time the opinion of writers of the highest repute on the subject in America. Undoubtedly, there are specimens in which vascular canals can be traced in the dentine; but, though these may have been seen in some few instances, they are undoubtedly exceptional cases, and the teeth may fairly be said to be,—as Owen, Tomes, and Nasmyth, say they are,—extravascular bodies.

Such is just a general outline of the structure of the component elements of the tooth. What evidences have we, then, of

their vitality? And are these sufficient to disprove the theory still maintained by some at the present time, that the various structures composing the tooth are, to all intents and purposes, inorganic bodies; and, when once formed, no change, such as occurs in more vital structures, takes place in them, but that they are as little dependent upon nutriment for their future support, as stone, brick, and plaster, used in the erection of a building? That the vitality of the teeth, if it exist at all, does so in a very low degree, must be conceded. In an adult, tooth growth and development are completed; and the vital changes, if any, which take place in it in the healthy state, are limited to the assimilation of that small amount of matter required for the maintenance of the ordinary state. Even this assimilating power is denied by some, on the ground that the teeth are extravascular: but, even this being conceded, it does not preclude the possibility of nutrition being carried on. All that is necessary for the due nutrition of a part is, that there should be a regular supply of appropriate blood near that part. We cannot say how near it must be. All that appears necessary is, that the nutritive material admits of being imbibed in sufficient quantity. It is by such imbibition that all parts of the body supply themselves with nutriment, and there is but little difference in this respect between the so-called vascular and non-vascular parts. In the former case, vessels pass through the interior; in the latter, on the surface. Sometimes even the same tissue is in one case vascular, and in another case non-vascular, as in bone. This, when in thick layers, has vessels running into it; but when thin, as in the lacrymal and turbinate bones, it has not; and, in these latter, the material is derived from the vessels of the mucous membrane covering it. We know nothing of the vessels except as carriers of nutriment to and fro. This may, indeed, undergo some change in passing through the walls of the vessels; but the change is not in assuming any definite shape, so that the formation of all tissues is really extravascular. Now, there is evidently in the tubular structure of dentine a possible means whereby the blood-plasma may be conveyed to every part of the dentine from the abundant capillary meshes upon the surface of the dental pulp. And in the cement, even when vessels do not permeate it, by means of the lacunæ and canaliculi, plasma may be conveyed from the vessels of the periodontal membrane; so that no argument against the vitality of these two structures, at least, can be drawn from their want of vascularity.

But further: we know that changes do take place in the dentine itself. As the teeth become older, they, like the bones, become denser in structure, and contain a greater proportion of earthy to organic matter than in the young; and the very interesting fact, too, first observed by Tomes, of the complete or partial obliteration of the dental tubes by a deposit of calcareous matter in their cavities around that part of a tooth attacked by caries, demonstrates that there is a certain amount of vitality in the dentine, which, though it is insufficient for the reparation of that part after it has become disintegrated by disease, is yet exerted to form a barrier, though an imperfect one, to check or retard its further ravages.

One other fact may be noticed here, which bears upon the subject; and that is the increased and extreme sensibility sometimes manifested in the half-disorganised and softened dentine. If an attempt be made to excavate this, as a preliminary operation to filling the tooth, the pain is often so acute as to compel the operator to desist. It is true, it is not always so, but it frequently occurs. Now, on what principle this can be explained, if we assert that the teeth are in the condition of inorganic bodies, I am at a loss to imagine. True it is, we cannot yet offer a satisfactory reason, as no nerves have hitherto been detected penetrating the tubules; and on this point we have not advanced since the days of Hunter. He fully recognised the great sensibility which carious teeth sometimes manifest, though he professed himself wholly unable to explain the cause.

With regard to the reparative power capable of being exerted by the teeth, there are on record some few cases in which a fracture of these organs through the fang has become united by a deposit of new dentine. I have never, however, had an opportunity of observing a case of this kind; and there appears to be little known on the subject, beyond the fact of its occasionally taking place.

I think, then, from a due consideration of these various points—that the tubular structure of the teeth affords an easy method whereby the plasma of the blood may find access to every part, and ensure its nutrition; the undoubted fact that changes do take place in the dentine and cement, the latter also frequently becoming hypertrophied; the power which the broken fangs of a tooth have under certain favourable circumstances of becoming united; and the extreme sensibility the teeth often manifest when the subjects of disease;—that we are fully justified in maintaining the doctrine of the vitality of the teeth.

We have now to consider what part this vitality of the teeth plays in caries, or, in other words, to define the pathology of this disease. It would, perhaps, have contributed to greater accuracy, and a better appreciation of this subject, had some other name been chosen by which to designate it; at least we should have avoided the risk of constantly confounding it with caries of bones, a disease to which it bears not the slightest analogy in origin, progress, or principle of cure. Since, however, the term is universally employed, it is, perhaps, better to continue to use it than to undergo the confusion consequent upon change of nomenclature. And, perhaps, here it will be advisable just briefly to state the phenomena observed in a tooth attacked by caries.

The first indication we have is an alteration of appearance in the enamel or in the dentine immediately subjacent; the enamel becomes either more opaque or chalky in appearance, and losing to some extent its subcrystalline character, becomes softer and more friable, or a black speck may be observed on the tooth; in this case, the enamel appears to suffer very little in hardness, the discoloration being principally due to the blackness of the layer of dentine immediately beneath the enamel. These are the two chief forms in which caries manifests itself: the after progress of the disease in the two cases is essentially the same, though varying in rapidity; this progress consists of a gradual removal of the earthy constituents of the dentine, and a subsequent disintegration of the animal matter; the disease attacking the dentine much more readily than the enamel, it is usual to find the internal cavity formed much larger than the external opening would lead one to suspect: as the disintegration progresses, it more or less rapidly approaches the pulp cavity, until this at last is reached. In the earlier stages there is but little pain, and in the majority of cases none at all, until the disease has made considerable progress; in some few, however, as soon as the tooth is attacked, slight symptoms of uneasiness are felt in it: but this usually lasts but a short time, and is not productive of much inconvenience. As the cavity increases in size, and the layers of dentine intervening between this and the pulp cavity become softened, so as to allow the passage of the fluids of the mouth to the highly delicate and sensitive pulp; and, moreover, by its diminished thickness allowing the pulp more easily to be affected by changes of temperature, severe pain is often felt. The brittle enamel now frequently breaks away, having lost the support of the subjacent dentine, and thus allows portions of food to enter, which, during mastication, frequently cause such pain as to compel the unfortunate possessor of the tooth to desist from using that side. With the exposure of the pulp, a new train of evils set in; this frequently becomes highly inflamed, sometimes suppurating; the inflammation extending downwards, attacks the periodontal membrane, whence arises alveolar abscess, and its concomitant results. It is not however with these ulterior evils that we are so much concerned at present, as with the disease in the bony part of the tooth. To account for this, two principal theories have been propounded. The first we may call the inflammatory theory; it supposes caries to be the result of inflammation in the bony structure of the tooth. Hunter, who was the first to write a scientific treatise on the diseases of the teeth, compares it to mortification; and though he states that he cannot define the real cause, he thinks it may be occasionally attributed to disease originating in the tooth itself. Fox, in his *Natural History and Diseases of the Teeth*, published at the commencement of the present century, refers it to inflammation of the lining membrane of the pulp-cavity, which, separating from the tooth, causes death of it, just in the same way as a separation of the periosteum will cause death of a part of the tibia, or of that of the pericranium caries of some portion of the skull. Mr. Bell believes it to be caused by inflammation set up in the substance of the tooth itself, the vitality of which being low, it is unable to recover from the effect of the inflammation. According to these writers, then, caries of the teeth is analogous to disease of the same name in bones; but I think it is not difficult to shew that there is nothing in common between them. Caries of bone is always attended by inflammation, is accompanied by the exudation of corpuscular or a plastic lymph, giving rise to the granulations and pus found at the diseased part. Caries of the teeth is not necessarily accompanied by inflammation; in the earlier stages it seldom is; in fact, it is doubtful if inflammation of the true

substance of the tooth ever takes place, or can do so. It is unvascular, and being so, is not liable to the changes manifest in inflamed vascular parts. There is sometimes observed an increase in the sensibility of the tooth, but hyperæsthesia, though an accompaniment of inflammation, is not of itself a sign, as it may, and frequently does exist independently of it. Nor must we confound the red colour we sometimes see teeth possess, with the colour produced in bone by inflammation, as the two have not a similar signification. The increased colour in bone is caused by the dilatation of the vessels in the Haversian canals which carry on the blood circulation in the bone; the red colour of teeth is caused by permeation of the dentinal tubules, by a fluid holding in solution the hæmatin of the blood-cells, and pathologically more resembles the staining of tissues by extravasations and exudations.

In carious teeth, again, there is no evidence of attempt at repair; the cavity once formed remains so, and is never filled up by osseous or fibrous matter. Nature does, indeed, seem to make some effort to prevent the evil result of exposure of the nerve, by consolidating the part of the tooth intervening between the disease and the pulp cavity; this she does by the deposition of more calcareous matter in their tubules, obliterating their cavities, and rendering them solid. Sometimes, too, this is effected by the deposition of new layers of osteodentine within the pulp cavity, as we see in cases where the teeth are worn down to the original site of this; but layers of a yellowish substance now close it up. Nor are the methods of treatment in the two cases less strikingly dissimilar; the surgical treatment of dental caries is purely manual; nature is passive, and neither hinders nor assists the operation. In caries of bone, the most we can do is to assist nature, which herself must heal and repair the breach: in dental caries, the operation of filling the teeth at once arrests the disease, and remedies the effects of its ravages.

We will now turn to the theory which maintains that caries is the result of a chemical action, a disintegration caused by application to the teeth or contact with them of some solvent menstruum. Of course this theory assumes that caries always commences externally; and I believe this to be the case, at least there is a want of any satisfactory evidence to the contrary, while in the great majority of cases it must be admitted that it does so commence. On the chemical hypothesis, then, some change takes place in the fluids of the mouth, rendering them capable of dissolving and disintegrating the teeth. This abnormal condition of the buccal fluids may be owing to a depravation of the fluids themselves when secreted; or, after being normally secreted, they may become vitiated by admixture with ingested solids or fluids, or by gastric eructation.

That the fluids of the mouth, under certain conditions, are capable of producing a carious condition of the teeth, is shown by the fact of natural teeth, artificially applied, being attacked in precisely the same manner, and the disease can almost be exactly imitated out of the mouth, by the application of nitric and other acids to the teeth. The earthy matters of the teeth being composed of carbonate and phosphate of lime, we are led to suspect that the solvent power of the oral fluids is due to the presence of an acid. Now in the normal state the saliva is alkaline; but there are certain states of the body, and in certain diseases, in which the saliva is said to be acid. According to Donné, the saliva is acid in inflammatory affections of the primæ viæ in pleuritis, encephalitis, acute rheumatism, intermittent fever, and uterine affections. Wright assumes that there are four varieties of acid saliva, viz., (*a*) that which occurs in idiopathic affections of the salivary glands; (*b*) that which presents itself where there is a predominance of acid in the organism generally from constitutional or other causes, amongst which he enumerates, scrofula, phthisis, rachitis, amenorrhœa, inflammatory rheumatism, etc.; (*c*) that form presenting itself in subacute inflammations of the mucous membranes of the stomach and intestines; and (*d*) that form occurring in dyspepsia—a somewhat vague mode of expression. Lehmann states that, in catarrhal affections of the gastric and intestinal mucous membranes, and in the round perforating form of ulceration of the stomach, he has very often, but not invariably, found the saliva acid. In cancer of the stomach and in diabetes, he says he has always found it acid. According to Donné and Frerichs, this acid reaction always depends on the buccal mucous membrane, which, when in a state of abnormal irritation, invariably yields an acid secretion. Now this alteration in character of the buccal fluids, is quite sufficient to account for the general and rapid decay the teeth sometimes undergo after certain diseases, and though our knowledge of the conditions under which this fluid becomes acid is still very defective, enough is known to give adequate reason for attributing to this cause some of those extraordinary instances which now and then occur, of all the teeth being simultaneously attacked with caries. But I apprehend it is not to this cause that ordinary cases of caries are so much owing as to the accidental vitiation of the normal fluids, by the lodgment of particles of food between the teeth, and remaining there until becoming decomposed. In the majority of cases caries does occur just in those situations where particles of food can obtain such lodgment, viz., in the fissures of the grinding surfaces of the molars, and between the approximal sides of the teeth; and we can, on this principle, easily account for the common occurrence of two adjoining teeth simultaneously decaying on their approximal sides; which fact has given rise to the very general popular belief, that a tooth when decaying causes its neighbour to decay. The true solution is, that both being subject to the same chemical agency, and both being similarly susceptible, both, as a necessary consequence, become diseased. But in addition to this alteration of the normal constitution of the salivary fluid, there may be some auxiliary cause at work resulting from inherent defects of structure in the teeth themselves. There may be *local* defect, such as fissures and cracks in the enamel, resulting from injury or mutual pressure one against the other, or from continued abrasion, or from imperfect development of the enamel, giving rise to the pits and grooves often seen on the anterior surfaces of the teeth, and where decay is very apt to commence, unless the teeth are carefully kept clean.

There may be a *general* defect of structure, consisting of a want of hardness and density in the teeth; according to Marchand, due to an excess of carbonate of lime: and this may be conjoined with a deficient vitality, and depending upon some morbid influence at work during their development. Under this head, too, perhaps we ought to class those obscure influences known as hereditary predisposition so often manifest in children's teeth, when those of their parents are deficient; frequently, even the corresponding teeth of the children decay exactly in the same place that their parents' did before them.

This chemical theory of dental caries has also the great merit of explaining the *rationale* of the treatment at present adopted for arresting its progress. By the removal of the decayed part, and filling the cavity with an indestructible material, the contact of those agents, upon the chemical action of which the disease depends, is prevented, and the further progress of the decay is arrested. I think, then, the evidence in favour of the chemical theory of caries, is pretty nearly conclusive. I can scarcely see how it can be designated a vital act, or brought under the category of inflammations. The vital power of the tooth seems rather, in certain conditions of these organs, or when they become subject to certain influences, to be inadequate to prevent decomposition; the power of chemical affinity overcomes the low degree of vitality they possess, and disintegration of their substance ensues.

Mr. Tomes is of opinion that the decay does not commence until the part of the tooth attacked is already dead; but I think the fact of the diseased softened part being often extremely sensitive to the touch, is quite incompatible with his opinion on the subject. To sum up, then, briefly, I think it appears that the teeth do undoubtedly possess vitality, though in a low degree; but this vitality plays no part, either in originating or modifying caries, or in repairing the effects of its ravages.

Testimonial to Messrs. Pritchard of Stratford-on-Avon. A testimonial has been presented by the Guardians of the Stratford-on-Avon Poor-law Union to Mr. Pritchard and his son, Mr. Frederick Pritchard, on the occasion of the former resigning the office of Surgeon to the Union House and the district attached thereto, an appointment which he has held since the formation of the Union in 1836, having been previously Surgeon to the poor of the borough for thirty-five years.

Testimonial to J. Wylie, Esq. A few days ago, Mr. Wylie, of Errol, Perthshire, through the hands of John Murray Drummond, Esq., of Megginch, and in presence of a large assemblage in Errol, was presented by a wide circle of his friends in every parish on the braes and in the Carse of Gowrie, with a handsome silver tea service, bearing an appropriate inscription, and with 150 sovereigns, as a mark of the esteem and regard in which he is held, both publicly and privately, during a residence of upwards of a quarter of a century in the district.

Reviews and Notices.

Outlines of Physiology. By John Hughes Bennett, M.D., F.R.S.E., Professor of the Institutes of Medicine, etc., in the University of Edinburgh, etc. Pp. 247. Edinburgh: 1859.

Virchow, in his *éloge* of the late Professor Müller, tells us that in the *Archiv* for 1834 and 1836, Müller attacks vigorously those physicians who do nothing themselves for the advancement of physiology, and yet expect everything from it. "May the genius soon appear," he exclaims, "who himself an investigator in the chemical, pathological, and microscopical analysis of morbid forms, will establish a system of general pathology worthy of the medical and natural sciences, securely based upon a more earnest foundation of philosophical examples of natural science, history, medicine, and physiology. From the pure physiologist we cannot expect this achievement; it is a problem for physicians, and one worthy of the highest talents." Thus wrote Müller some four and twenty years ago. He then saw clearly enough the right path opening for the advance of medicine, and the right method of pursuing out the journey along it. That physicians have long hesitated to trust themselves to the guidance of physiology and pathology, is what we all well know; but in these last days a great change has come upon us in this respect, and even Müller would be satisfied with the direction medical science has taken.

Few men have laboured harder or more perseveringly in the path pointed out by Müller, than the author of these *Outlines*, in the attempt of making modern pathology and modern physiology subservient to practical medicine. We last year spoke of his lately published work on the *Practice of Medicine*, as being the marked forerunner of a new life in medicine; and the eagerness with which the first edition of this work has been received by the profession assures us that the profession is itself participating widely in the revival.

The work before us is the very antithesis of the large book, which is called a large evil. It is a little book, and it is a good book. It treats of subjects of profound importance to the medical man, of physiology and pathology; and its chief utility lies in this particular, that it reduces the facts and the present theoretical condition of these sciences into a form readable and facile of comprehension to the general practitioner and the student of medicine. The author's object evidently is to show how histology, physiology, and pathology, may be made to form an harmonising whole; that they, indeed, must form a harmonising whole if used as a groundwork for practice. Now, if there be one proof greater than another, that a man is master of the business he takes in hand, it is this: that he can bring the abstruse things of a high science down to the comprehension of common-place and every day intelligences. We fancy that men who have hitherto (and not without reason) shuddered at the idea of blastemata, nucleoli, and cells, may, on the perusal of these few pages, be led to see some soul of virtue in them. It is not necessary because a weapon or a tool is used badly, that the weapon or tool should be bad. And, besides this, men really have not time to peruse large treatises on special subjects. A summary like this, from the hand of a master, is absolutely requisite for the purposes of the man engaged in business. If the practitioner is to peruse Schleiden in order to come at a knowledge of cells and nuclei, the fact is, he will assuredly die in ignorance of the world of microscopic entities. And how, again, is a man steeped in the daily business of earning his bread to face those ponderous tomes of Rokitansky? He wants all the pith of the thing in a nutshell, made ready to his purposes, as he will find it in this Handy Book of Professor Bennett.

The book is divided into three parts, viz.: histological physiology, normal physiology, and pathological physiology; and one great point, the end and prime object of our art, is well kept in view in their description, viz., the cure of disease.

From what we have here written, we need not say that we highly recommend these *Outlines* to our readers. They do justice to the author's high reputation.

Familiar Letters on Chemistry, in its Relations to Physiology, Dietetics, Agriculture, Commerce, and Political Economy. By Justus Von Liebig. Fourth Edition, revised and enlarged. Edited by John Blyth, M.D., Professor of Chemistry in Queen's College, Cork. Pp. 536. London: Walton and Maberly. 1859.

It would be an act of supererogation on our part to undertake an elaborate recommendation of the soundly philosophical, though "familiar," *Letters* of Baron Von Liebig. In this, the fourth edition, the editing of which has been ably performed by Dr. Blyth, there are several additions made, among which are chapters on the following subjects: the study of the Natural Sciences; the Correlation of the Forces of Inorganic Nature; the Alteration of Properties in Bodies; and Materialism in connection with Natural Inquiries. The last named chapter contains an able exposition of the opposing views of the vitalists and the materialists—those who have referred the performance of the functions of the living body entirely to the vital principle, and those who recognise merely the action of physical or chemical forces. The author holds the *juste milieu*.

"To do justice to the materialists, we must take into consideration that their views are in reality but the consequence of an extreme reaction against the prevailing doctrines of a few years ago. The physiology of that period did not possess the firm foundation of exact inquiry, viz., experiment. All the processes of nutrition, respiration, and motion, were referred by it to a single imaginary cause: viz., the vital force. In the organic frame, physical and chemical forces had no part. The organism produced, in its own peculiar way, the iron and other materials which it required, just as it produced heat. Exact inquiry has, however, proved that all material laws are actually in operation in the various organic processes; and the consequence has been, that the extreme reaction against the earlier views has led to the opinion, that no forces but those of chemistry and physics preside over the phenomena of life. Incapable as the natural philosophers of a former period were to prove the operation of a vital force in every process of the organism, the materialists of a later period are equally unable to shew that their inorganic forces take the place of the vital force, and even give rise to the manifestations of mind. The assertions of both parties are equally without foundation, and arise from the want of a true knowledge of the processes of the living body. Between these extremes lies the truth, which rises above all partial speculations, and recognises in the living frame, in addition to the physical and chemical forces, another cause which presides over and determines the forms of organic structures." (P. 295.)

This work of Baron Von Liebig is one of those books from which the mind desiring healthy philosophical instruction can receive it in a most pleasant and yet most perfect form. There is no necessity for an acquaintance with all the intricacies of scientific nomenclature and terminology: with a moderate amount of chemical knowledge as a basis, no man of ordinary intellect will rise from the perusal of these Letters without the feeling that he has partaken of a wholesome intellectual feast.

An Essay on the Action of Medicines in the System; or, "On the Mode in which Therapeutic Agents introduced into the Stomach produce their Peculiar Effects on the Animal Economy". Being the Prize Essay to which the Medical Society of London awarded the Fothergillian Gold Medal for 1852. By Frederick William Headland, M.D., B.A., F.L.S.; Licentiate of the Royal College of Physicians, etc. Third Edition, revised and enlarged. Pp. 447. London: John Churchill. Edinburgh: Maclachlan and Stewart. Dublin: Fannin and Co. 1859.

In this, the third edition of his valuable work, Dr. Headland has made such alterations and additions as have been de-

rivable from extended opportunities of personal investigation, as well as from a knowledge of what has been done by others in the same field.

Inventions and Appliances
IN
MEDICINE AND SURGERY.

SAVORY AND MOORE'S PATENT BOTTLE FOR THE PREVENTION OF ACCIDENTAL POISONING.

There has been forwarded to us for inspection, by the patentees, Messrs. Savory and Moore, a bottle constructed with the praiseworthy object of rendering accidental poisoning as difficult as possible. The use of bottles of peculiar shape, or the affixing the word "Poison" in legible characters, may even be ineffectual to awaken some to the fact that a deadly poison is being mistaken for a wholesome drug. Messrs. Savory and Moore, therefore, have contrived a receptacle for liquid poisons, with which the most careless or sleepy individual cannot do harm. The contrivance is very simple: it consists in the insertion of a diaphragm with a narrow aperture across the inner part of the mouth of the bottle. The effect of this, as we have proved by experiment, is, that it is impossible for fluid to escape from the bottle otherwise than by drops. This phenomenon, occurring where it was not intended to use a bottle containing poison, would at once point out that there was something wrong. We learn that the bottles of Messrs. Savory and Moore have been tried in the principal military hospitals; and that the Director-General of the Army Medical Department has given instructions "that all poisonous and potent medicines for the use of the army be in future contained in these bottles". We think that, if the bottle which we have described were introduced into general use, many cases of accidental poisoning by fluid substances would be prevented.

British Medical Journal.

SATURDAY, MARCH 26th, 1859.

DIPHTHERIA: STATISTICAL RETURNS.

We propose to publish a collection of cases of this disease in a tabular form, embracing the principal points in the experience of the London and country hospitals, and of our associates in general.

The points to which we propose to direct principal attention, are the following:—

1. The *Age* and *Sex* of the Patient.
2. The *Hygienic Conditions* under which he had been living; *e.g.*, occupation, supply of food and clothing, purity or impurity of atmosphere, etc.
3. The *Meteorological Conditions* prevailing in connection with the spread of the disease, in its increase or decline.
4. Evidence of the presence or absence of *Contagion*.
5. Had the patient had *Scarlatina* or not? Was scarlatina prevalent in the neighbourhood?
6. *Appearances* and *Symptoms* when first seen.
7. Time at which the *Leathery Membrane* appeared; and its situation.
8. Presence or absence of *Fungus* in the membrane, as shewn by microscopic examination.
9. Presence or absence of *Affections of Internal Organs; e.g.*, of *Kidneys*, as denoted by albumen in the urine.
10. *Treatment* and *Progress* of the disease. Under the latter head, special attention to be directed to the state of the trachea; and, as a part of this subject—
11. The indications for and success of *Tracheotomy*.
12. *Duration* and *Event* of the case.
13. *Post Mortem Appearances* in the fatal cases.

The experience of many of our country associates, whether derived from their position as medical officers of hospitals, or from private practice, has doubtless furnished them with the means of replying to the foregoing queries. We shall feel greatly obliged if the members of the Association, who have met with cases of diphtheria, will forward abstracts of them in the course of the next ten days to the Editor of this Journal, at the office, 37, Great Queen Street, London. It is not expected that every man will be able to funish a large collection of cases: but we would impress on our friends not to withhold their individual contributions because they are small. Each single case from a single observer will help to swell the mass of facts which we are desirous of collecting.

AN IRISH BRANCH OF THE ASSOCIATION.

When the Medical Reform Act was carried, mainly through the long continued exertions of this Association, it was by some persons prognosticated that our task was done, and that henceforth our numbers would gradually melt away. The Association, it was confidently asserted, had been mainly nourished by its continued opposition to Colleges and Corporations; and when these gave way, we were pithily told that we should die of inanition, like the Anti-Corn Law League and a score of others of a like nature, which, having fulfilled the end for which they were created, speedily ceased to be. Some of these prophets, it is true, would have been only too glad if they could have brought about this consummation—

"The wish was father to the thought."

But the last year has shown how entirely they have miscalculated the depth to which the British Medical Association has struck its roots in the mind of the profession. For many years we have counted within our ranks the cream of all the professional ability of England and Wales, and last year the great meeting at Edinburgh enabled us to strike firm root in Scottish soil. Our muster roll will be found to contain nearly every name that has thrown any lustre upon medicine in the northern seat of medical learning; and in all the great Scottish towns the power and influence of the Association is rapidly spreading. It has been a source of regret to us, however, that hitherto we have not crossed the channel and formed any permanent connexion among our Irish medical brethren. At the Edinburgh meeting, we rejoiced in one Irish member of the Association; we are glad to say, however, that we have it in our power to congratulate the Association upon a far different state of things. The one grain of mustard seed (if Dr. Mahood will forgive us the figure) has suddenly expanded into the goodly tree, which will in time, we trust, spread its branches over the whole Emerald Isle.

At the Annual Meeting of the Association of General Practitioners of Ireland, held in Dublin, on the 17th instant, the President, Dr. Moore, intimated that henceforth that body would be merged into the British Medical Association, and form its Dublin Branch. We trust and believe this union will be of essential service to both parties. The Parent Association cannot henceforth but profit by the intelligent support of a strong central Branch, having its head-quarters in a city con-

taining one of the most renowned medical schools in Europe; and this Journal, we have no doubt, will be benefited by the new blood which the intelligent class of general practitioners of Ireland will bring into its pages. Scottish practice is from time to time reflected in the pages of this Journal; but the quick wit of Ireland, so capable in emergencies and so acute in diagnosis, has hitherto found no exponent in the London press. We hope we may be able in some measure to give our aid in this direction. On the other hand, the Irish Branch will find that, by extending their relations, they will open to themselves a wider sphere of usefulness.

And while we record our high gratification at the establishment of a Dublin Branch, and our belief in the benefits that must result therefrom, we must not omit to say that we hope to see Branch Associations formed in other parts of the Emerald Isle. Belfast, Cork, Limerick, Waterford, and Galway, are among places which might be made centres of important combinations of the profession, under the wing of our Association.

We are already beginning to reap the fruits of widening the grasp of the Association. Since we have become "British", Scotland has given us a more kindly grip; and now Ireland shakes hands with us across the Channel. We hope that, before long, the new union will be cemented by the presence of the Parent Association in the Irish metropolis; and that there a bond of professional unity and brotherhood, firmer than any that Acts of Parliament can make, will be established at once and for all time between the members of our profession in the three countries.

THE WEEK.

We are glad to be able to state that notice has been taken in the proper quarter of the discrepancy, to which we alluded in the Journal for March 12th, as existing between the new by-laws of the Royal College of Physicians and certain clauses of the Medical Act: and that steps have been taken by the College for the purpose of correcting the error. With a view to correct the difference in the periods fixed on by the Act and the by-law respectively, the College, at a meeting of the Fellows held on Thursday, March 17th, repealed the latter, in order to enact one in accordance with the Act of Parliament. The mistake committed by the College was without doubt merely an oversight; but it might have led to evasions of the Act by a certain class of persons, and perhaps to other mischievous results.

We publish this week some important documents regarding the medical service of Her Majesty's Indian Army. They shew distinctly, in our opinion, that India is not the *El Dorado* for the medical man that it has been imagined to be; and especially that, since the issue of the Royal Warrant of October 1858, the medical officers of the Indian Army are altogether, both as regards rank and pay, in an inferior position to their brethren in the British Army. Considering the services rendered to the empire of this country in India by members of the medical profession, in the earlier years of its establishment; the labours of some members of the Indian medical service in the promotion of medicine, military hygiene, and science; and the nature of the service which the surgeon of the Indian Army is called on to perform, and the circumstances under which he acts,—it cannot surely be just that men of so meritorious a class should be left neglected in any improvements made in the condition of the medical officers of the public services. Their claims to consideration at the hands of the authorities rest, *mutatis mutandis*, on grounds equally strong with those of the naval and Poor-law surgeons. At present, political affairs seem to threaten delay in the reforms which are called for in the public medical services; but surely the remonstrances made by the members of each and all of these services, backed up by the voice of the profession beyond them, cannot fail to procure for them a boon similar to that which has been conceded to the medical officers of the British Army.

Among the illustrious Neapolitan exiles who have just arrived in London, we find the names of Aniello Ventre and Michael Angelo Colafiore, *physicians*. We know that those victims of the tyranny of King Bomba have expressed their disinclination to be lionised in the metropolis. Nevertheless, we do not think there could be any objection, on the part of the two gentlemen named above, to receive the sympathy and congratulations of the members of their own profession. It would be but a graceful act if the Colleges of Physicians and Surgeons were to take upon themselves to express, in the name of English medicine, their abhorrence of the treatment to which the Signori Ventre and Colafiore have been subjected; and if the Colleges should think the matter without their province, we trust that the profession generally will not neglect the opportunity.

THE LATE ALEXANDER MONRO, M.D.

We last week recorded the death of Dr. Alexander Monro, Emeritus Professor of Anatomy in the University of Edinburgh, which took place on Thursday, the 10th instant, at his seat, Craiglockhart House, near Edinburgh.

The deceased was the third of his family who, in direct succession, ably filled the Anatomical Chair in the University of Edinburgh for upwards of a century. He was born November 5th, 1773; was educated at the High School, and studied at the University under the late Professors James Gregory, Cullen, Black, Duncan, etc. After having passed through a full course of medical education, and obtained the degree of M.D., he went to London, to prosecute the study of anatomy and surgery under the famous Wilson; and thence he repaired for a short time to Paris. In 1800, he was appointed conjoint Professor with his father, at whose death, in 1817, he became sole Professor of Anatomy and Surgery, and continued to lecture till 1846, when he resigned the Chair.

Among his numerous pupils, there are not a few who have risen to the highest eminence in medical science; such as Professors Alison, Traill, Christison, Syme, Simpson, Liston, Miller, Edward Forbes, etc., and Drs. Abercromby, Hope, Holland, Bright, Marshall Hall, and Sir Humphry Davy, are of world-wide reputation.

He was the author of several anatomical, medical, and surgical treatises, of which the following are the principal: *Elements of Anatomy; Morbid Anatomy of the Brain; Morbid Anatomy of the Stomach, Gullet, and Intestines; Anatomy of the Perinæum; Anatomy of Crural Hernia;* etc.

Dr. Monro was twice married; first, in 1800, to the eldest daughter of Dr. Carmichael Smyth, by whom he had six sons and six daughters, one of whom, a boy, died in infancy; secondly, in 1836, to a daughter of David Hunter, Esq., of London, who survives him.

Association Intelligence.

FORMATION OF A DUBLIN BRANCH.

The Annual Meeting of the Association of General Medical Practitioners of Ireland was held at the Apothecaries' Hall, Dublin, on Thursday, March 17th, W. D. Moore, M.B., President, in the chair.

The minutes of the last Annual Meeting having been read, the President delivered the following

ADDRESS.

Gentlemen,—Owing to your kindness, it has been my lot to have had the honour of presiding over this Association during the most eventful period of its existence. In the course of the past year, as you are all aware, the long-agitated question of medical reform received its adjustment, and though the measure which, on the 2nd of August last, received the royal assent, may not have satisfied the expectations of all, and though it must be admitted that some of the imperfections to which every human institution is liable, attach to it, still the Medical Act of 1858 is, in my opinion, to be considered as a gain, inasmuch as it unites into one body all the members of the profession, confers on them rights and privileges in common, and, if it be honestly worked, will afford the means of raising the education and status of the medical community. And when I look at the constitution of the Medical Council, I cannot doubt that the measure will be carried out, in the present day at least, with an earnest desire to advance the best interests of medical science, and of society at large. Among our representatives we have some of the most distinguished ornaments of the medical profession, men of enlarged and liberal minds, who have already, in their several spheres, done much in raising the tone of medical education. Already, it appears to me, the recent change has borne fruit; the several licensing bodies are giving a more practical character to their examinations; the hospital, the dissecting-room, the laboratory, the field, will henceforward, I trust, be found to afford the true preparation for the ordeal through which the student must pass previously to his entrance on the active duties of his profession. I shall be much disappointed if the important subject of the preliminary and general education of the medical student do not receive a marked impulse from the operation of the recent Act. Here, as in every wise and enlightened measure, our venerable *alma mater* takes the lead. The education of the graduates in medicine of the University of Dublin has long been of the highest possible stamp. The attention of the governing body of the University has now been directed to conferring upon surgery a status it has never had before. The ordinance of the Board of Trinity College, establishing the full degree of Master in Surgery, to be taken only by students who are Bachelors of Arts, has just been promulgated. This is, I believe, the first time such a degree has been given, under similar conditions, in any university, and the regulation is one which must tend to elevate surgery as a branch of a learned profession. I shall not dwell longer upon the benefits which, I anticipate, will flow from the Medical Act of 1858, in the obtaining of which measure the value of such an association as ours was so eminently shown; but I will remind you, that there is one among us to whose long, unswerving, and well directed efforts, much that is good in that enactment, as it affects the general practitioners of Ireland, is mainly due. From his first entrance on the professional life, Dr. Leet has been the able and unflinching champion of the rights of the general practitioners of Ireland, and their unanimous voice has placed him in the honourable position in the Medical Senate of the United Kingdom, which he now fills with equal ability and courtesy. To him your thanks, as they were justly due, have been already tendered, and it was my pleasing duty to be, as your president, the medium through which they were conveyed.

Most of you are aware, gentlemen, that it is intended that this shall be the last annual meeting of the Association of General Medical Practitioners of Ireland as such. We are about, as will just now be more fully explained to you, to merge our comparatively limited society in the British Medical Association, and with more extended relations, a wider sphere of action, and increased means of doing good, to labour, I trust, more zealously and more efficiently for the advancement and elevation of our profession. But in taking leave of our old association, I hope we shall never cease to be influenced by, and to act in accordance with, the excellent code of ethics contained in its fundamental rules. A most valuable institution connected with the old association, which has during the past year enabled us to assist several widows of our deceased brethren, and in one or two instances, to aid members of the profession who had experienced reverses of fortune, should also, I think, be kept up—I allude to the Benevolent Fund. There are, moreover, questions respecting public appointments and the equitable remuneration of medical officers which must engage the attention of the new branch of the British Medical Association. In dealing with such questions, we shall, I confidently hope, find, in our new relation, that union is strength; and, if we be only true to ourselves, the result cannot be doubtful. In conclusion, it only remains for me to thank you sincerely for the honour you did me, on this day twelvemonth, in placing me in this chair, and to crave your kind indulgence for the very imperfect manner in which I have discharged the duties of my office.

RESOLUTIONS.

Dr. Moore having left the chair, and William Gorman, Esq., Vice-President of the Association, having taken the same, the following resolutions were unanimously adopted.

1. That the President's address be entered on the minutes.

2. That the cordial thanks of the Association are due to Dr. Moore for his dignified conduct in the chair, and for the great interest he manifested in the affairs of the Association during the past year.

3. A letter from Sir Charles Hastings, the President of the Council of the British Medical Association, expressing a wish for the institution of an Irish Branch in connexion with the British Medical Association, having been read, and several members having already been enrolled among its associates, it was unanimously resolved, that a Branch, to be called "the Dublin Branch of the British Medical Association" be now formed.

4. That William Daniel Moore, Esq., M.B., L.R.C.S.Edin., M.A.H.I., be elected the President of the Branch Association for the ensuing year.

5. That William Gorman, Esq., be elected Vice-President and Secretary.

6. That, while the Irish Association shall be merged in the British, it shall continue to hold and be actuated by the rules and principles of conduct which were adopted at its original formation, and agreed to by each member; viz.:

a. To endeavour to attain the highest knowledge and skill in his profession of which he is capable, and to provide himself with all means and appliances requisite for its successful promotion.

b. To continue to hold inviolate every trust imposed in him in a professional capacity.

c. To regard as of one brotherhood all honourable members of the medical profession, and to be true to their reputation and interests.

d. To repudiate and refrain from every species of professional charlatanism, whether it be homœopathy, hydropathy, Mesmerism, drugging, quack advertisements, or puffing.

e. To seek professional remuneration by charges for advice and attendance in every instance, when it can be effected.

7. That in future the meetings of the Branch Association shall be held quarterly, and that the days of meeting shall be the 17th of June, of September, of December, and of March, unless any of those days shall happen to fall upon Sunday, when the meeting shall be deferred to the Monday next following.

8. That this Association regards the present mode of appointing medical officers to the charities in Ireland as unjust to the great mass of legally qualified practitioners, and as fraught with serious injury to the sick poor; and that the Association will not cease to urge upon the Poor-law authorities and electing boards the requirement of a *double* qualification from all candidates for medical offices under their jurisdiction in accordance with the law of the new Medical Act, and with the rule which obtains in England.

9. That a copy of the President's address and of the proceedings of the day be forwarded to Dr. Wynter, with a request that they be published in the Journal.

LETTERS AND COMMUNICATIONS.

Letters or communications for the JOURNAL should be addressed to Dr. WYNTER, Coleherne Court, Old Brompton, S.W.

Letters regarding the business department of the JOURNAL, and corrected proofs, should be sent to 37, Great Queen Street, Lincoln's Inn Fields, W.C.

BRANCH MEETINGS TO BE HELD.

NAME OF BRANCH.	PLACE OF MEETING.	DATE.
BIRMINGHAM AND MIDLAND COUNTIES. [General Meeting.]	Hen and Chickens Hotel, Birmingham.	Thursday, April 21st, 6 P.M.

MEDICAL REGISTRATION.

PUBLICATION OF THE REGISTER.

WE have been requested by Dr. Hawkins to give notice that all persons who desire their names to appear in the Register printed for 1859, should apply to be registered before the 1st day of May, 1859.

THE MEDICAL COUNCIL.

EXECUTIVE COMMITTEE OF THE GENERAL COUNCIL.

32, Soho Square, London, W., 28th February, 1859.

PRESENT:—Sir Benjamin C. Brodie, Bart., *President*, in the Chair; Sir James Clark, Bart., Mr. Lawrence, Mr. Nussey, Mr. Green, Dr. Storrar; Dr. Francis Hawkins, *Registrar*.

The minutes of the last meeting were read and confirmed.

The resolution passed by the Branch Council for Ireland, respecting the General Register, was read.

There was also read a memorial from the Royal College of Surgeons in Ireland, in support of that resolution.

A letter was read from the Committee of the London Medical Registration Association, inquiring whether the Medical Council purpose undertaking the prosecution of illegal practitioners.

The Registrar was directed to reply, that until the Medical Register is completed, it cannot be determined who are, and who are not, illegal practitioners.

BRANCH COUNCIL FOR IRELAND.

Monday, January 31st, 1859.

Applications for Registration under the 46th Clause of the Medical Act were then considered, under the provisions of the resolution of the General Council of January 25th, 1859; and special orders were made for the Registration of the following applicants; viz.—

Richard Graves, of Ringville, as Medical Officer of a Dispensary District, by appointment, under the Act 14 and 15 Vic., c. 68, sec. 14; James Hamilton, of Newtown-Stewart, ditto, and as Surgeon Royal Navy; Robert M. Barr, of Maghera, ditto, and as Surgeon Royal Navy; Charles Patterson, M.D., of Rathkeale, ditto; John O'Donnell, of Ballyshannon, as Assistant-Surgeon in the Army; Hans Lloyde, of Malahide, as Assistant-Surgeon of a Regiment of Militia.

It was then resolved—

"That the proposal of Mr. Francis Morgan, to let the parlours of his house, 35, Dawson Street, for a Council room and office, at a rent of £50 a-year, be accepted; and Dr. Smith and the Registrar were requested to procure the necessary furniture." D. J. CORRIGAN.

Wednesday, February 23rd, 1859.

Present:—Dr. Corrigan, in the Chair; Dr. Leet, Dr. Smith, Dr. Apjohn, Dr. Stokes; Dr. Maunsell, *Registrar*.

The minutes of last meeting were approved and signed.

An application for Registration, under the 46th Clause of the Medical Act, was considered, and a special order was made to register John Musgrove, of Fintona, as Surgeon of the Royal Navy.

Several accounts were examined, and ordered to be paid.

An agreement for the tenancy of the offices, 35, Dawson Street, was read, and the Registrar was authorised to sign the same.

The Medical Act Amendment Bill was read.

The subject of the construction of the General Register, and of the mode of its publication, having been considered, it was moved by Dr. APJOHN, seconded by Dr. STOKES, and unanimously resolved—

"That it is the opinion of this Council that there should be a separate Register, in alphabetical order, for England and Wales, for Scotland, and for Ireland, respectively; as in such form the Register will be more easy of reference, more correct, and more saleable, than if there be only one continuous alphabetical Register for all; and that such Registers may be bound together, or sold in separate parts, as required."

Ordered—That the foregoing resolution be transmitted forthwith to the Executive Committee, and to the Branch Councils for England and Scotland.

It was then resolved—

"That the Registrar be directed to write a letter of thanks to the President and Council of the Royal College of Surgeons, for the accommodation kindly afforded to this Council from the commencement of its operations, in the beginning of December, up to the 22nd inst."

Wednesday, March 2nd, 1859.

Present:—Dr. Leet, in the Chair; Dr. Williams, Dr. Smith, Dr. Apjohn, Dr. Corrigan, and Dr. Stokes; Dr. Maunsell, *Registrar*.

The minutes of last meeting were approved and signed.

A letter was read from the Registrar for England, in reference to the resolution adopted by this Council on the 23rd of February, in regard to the mode of publication of the General Register, stating that the Executive Committee met on the 28th ultimo, and adopted the following resolutions:—

1. "That the Executive Committee, to whom the superintendence of the publication of the Medical Register has been confided by the General Council, have acted, and must continue to act, in strict conformity with Sections 25 and 27 of the Medical Act."

2. "That the Registrar be directed to inform the Registrar of the Branch Council for Ireland, that the printing of a single General Register, in alphabetical order, according to the surnames, has been commenced; that the Registrar of the Branch Council for Scotland has continued from time to time to send entries, as directed in Section 25 of the Act, to the Registrar of the General Council; and that no entries, which are not so sent, can appear in the Medical Register for the present year."

On the motion of Dr. CORRIGAN, seconded by Dr. SMITH, it was resolved—

"That the Registrar be directed to write to the Executive Committee to the following effect:—to inform them that the Branch Council for Ireland feel themselves called upon to enter their protest against the resolution of the Executive Committee of meeting of 19th February, proposing to print the General Register 'with the adoption, in the column for 'qualifications', of such abbreviations as are in ordinary use.'

"The Branch Council for Ireland desire to observe, that they do not consider the Executive Committee are empowered to depart from the form of registry set forth in Schedule D, and referred to in Clause xvi, which latter empowers the General Council alone to make any variation in the form of registry set forth in Schedule D; that the only alteration authorised by the General Council is the omission of titles in Column 4, by resolution of General Council of the 27th of November, 1858; and that the power given to the Executive Committee authorises them to superintend the publication of a registry, as then approved of, but does not give them power to make any alteration in its form."

It was ordered, that Messrs. Woodlock and O'Donnell be directed to invest £3,000 in New Three Per Cent. Stock, in the names of Drs. Stokes, Smith, Corrigan, and Williams; and that the Chairman of this day and Dr. Smith be empowered to sign a cheque for the amount when the stock shall be transferred.

Reports of Societies.

ROYAL SOCIETY.

JANUARY 20TH, 1859.

SIR BENJAMIN BRODIE, Bart., President, in the Chair.

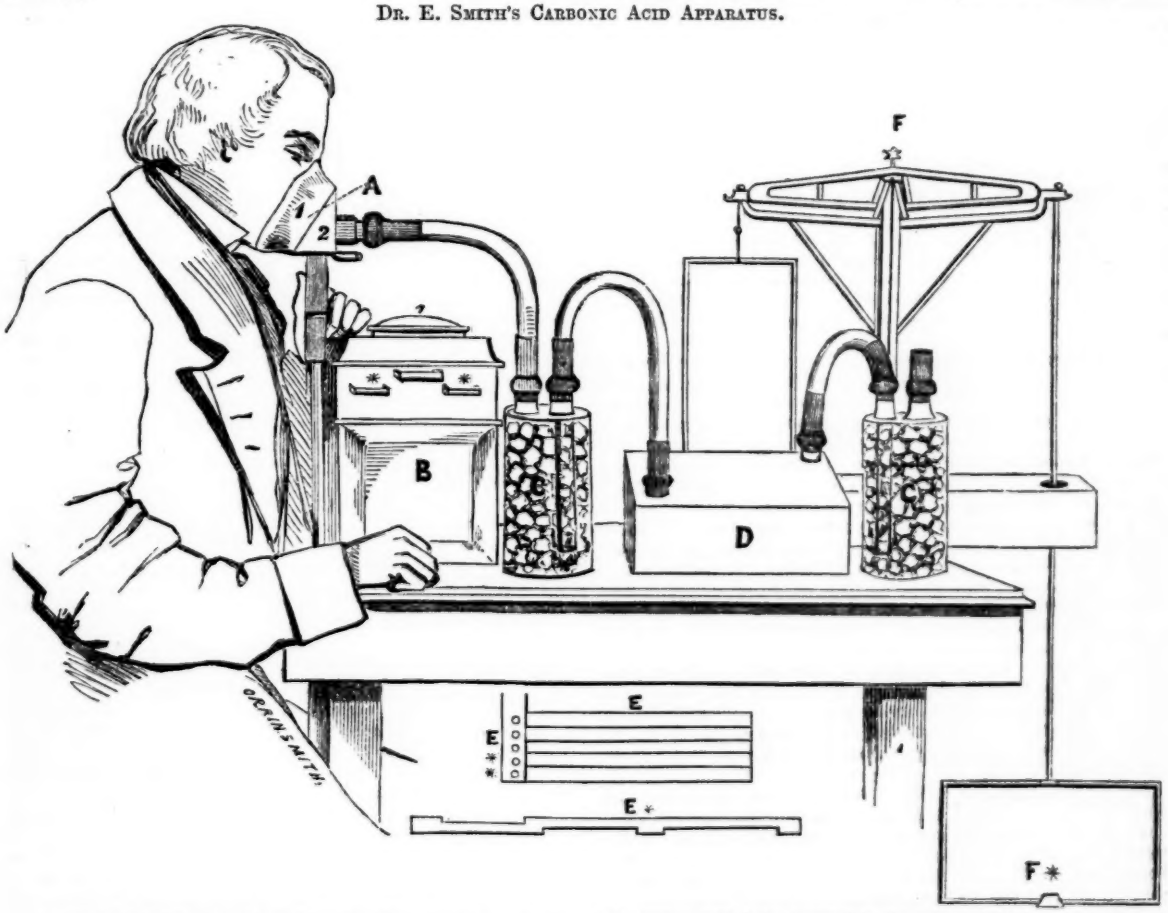
EXPERIMENTS ON SOME OF THE PHENOMENA OF RESPIRATION.

BY E. SMITH, M.D., LL.B.

THE APPARATUS which the author has employed in all his experiments may be described as follows:—There is, first, a MASK (A) which covers the nose, mouth, and chin, connected by a caoutchouc tube with a small spirometer (B), which measures and registers the air inspired. The mask fits the features so closely that no air can enter the mouth except through the spirometer; and it is composed of tolerably thick sheet lead, lined with sheet India rubber. There are valves so arranged that the expired air cannot pass back into the spirometer, but is directed through other tubes into the analytical apparatus; and, during inspiration, this expired air cannot re-enter the mask. Hence all the air which enters the mask is inspired, and none is respired twice. The SPIROMETER is a small one-light dry gas-meter, of improved manufacture, and registers from one to a million cubic inches. The motor power being the inspiration, it is that of a suction, and not a forcing pump; and hence the spirometer moves in a reverse manner from that which occurs when it is used as a gas-meter. (It will be observed, that it is not a *gas-holder*, such as Hutchinson's spirometer, but a *gas-meter*; and, by frequent testing, it was found to register with uniform accuracy.)

There is also an ANALYTICAL APPARATUS, in which the carbonic acid is absorbed by caustic potass. This has two peculiarities, viz., that the exposed air does not pass *into*, but only *over* the solution of potass, so that no impediment is offered to free expiration; and that the whole of the carbonic acid is absorbed during the period of expiration. Hence, when the experiment is over, the carbonic acid can be immediately weighed in one of Oertling's balances, which weigh to the one-hundredth of a grain with seven pounds in each pan; and the experiment can be renewed in a very few minutes. The apparatus consists of three parts: *first*, a desiccator of sulphuric acid and pumice stone (C), of a capacity of seventy cubic inches, into which the expired air is immediately received from the mask, and from which the dry air is passed into a potass-box (D), which is the *second* and the novel part of the apparatus. This is made of gutta percha, one-eighth to one-tenth of an inch thick, with dimensions of 12 in. × 12 in. × 5 inches, the edges being well fastened together by the hot iron, and by a sealing of strips of gutta percha melted and fixed upon the joints by the hot iron. There are five chambers (E), each occupying the whole superficies of the box, and five-eighths of an inch in depth; and, being placed over each other, there is a communication from one to the other by an opening somewhat larger than the area of the trachea. Around this opening, on the upper surface of each floor, is a ring of gutta percha, one-fourth of an inch in depth, to prevent the fluid lying upon each floor from passing through into the chambers beneath. Each chamber is subdivided, by strips of gutta percha (E*), into six cells. The strips are fastened by the hot iron to both the floors, and are made imperfect in the lower edge, so as to allow the fluid to pass freely over the whole chamber, and also at the upper edge at each end alternately, so as to permit the column of air to traverse the cells one after another, and therefore in two directions al-

DR. E. SMITH'S CARBONIC ACID APPARATUS.



A. Mask. 1, 2. Brass part to support the valves and tubes. Tolerably thick sheet lead to be moulded to the features.
B. Spirometer. 1. Index. ** Loops for knapsack straps.
C C. Desiccators containing sulphuric acid and pumice-stone.
D. Potass-box, with five chambers, as shewn in section E.
E**. Tubes, with holes, inserted in the corner of the box, through which the fluid is introduced and removed. The openings are closed by turning the inner tube half round.
E. Partition in the chambers of the potass-box.
F. Oertling's balance, with long arm and pan. F* to receive the potass-box.

ternately, and at length to be passed through the opening in the floor to the chamber above. There are thus five chambers, having a total superficies of upwards of seven hundred inches, which communicate with each other, into each of which the fluid potass is passed by means of gutta percha tubes three-eighths of an inch in diameter, or by two sliding tubes, as represented in (E**). Thirty fluid-ounces of solution of caustic potass, of specific gravity 1·27, are introduced, and are found by experiment to absorb upwards of six hundred grains of carbonic acid, without permitting the smallest trace to pass over, as tested by baryta water. The expired air is passed to the bottom chamber by a gutta percha tube (E**), of the size of the trachea; and, having passed through each cell of each chamber in succession, escapes from the upper chamber, and is carried to the third part of the apparatus. The tubes are closed with corks when the potass has been introduced, and the corks are not removed until the contained potass must be discharged and replaced. The same potass may be allowed to remain in the box for many days; and the box itself, after having been used for nearly twelve months, will still be uninjured by the fluid, provided it was at first very securely made; but, should a leak have occurred, the surface must be neutralised with acid before the hot iron will again secure it. The *third* part of the apparatus is a desiccator (c) similar to the first, which absorbs the watery vapour which the dried expired air had carried off from the fluid potass. The addition to the weight of the first drying apparatus with the mask and tubes gives the amount of vapour in the known volume of expired air, and the increase in weight of the second and third parts of the apparatus gives the amount of carbonic acid in the expired air. When the expired air is passed with the rapidity of ordinary expiration, this apparatus is sufficient; but when the rapidity is increased, as in voluntary efforts or during exertion, it is needful to use a double set. When, during a continuous experiment, it is desirable to weigh the carbonic acid at intervals, this may be effected by having two sets of the apparatus, since one may then be detached from the mask, and another be attached, without the loss of an expiration. The apparatus, including even the balances, is portable, and may be placed in two boxes, and carried to any distance without injury.

The author in this paper described the quantity of carbonic acid exhaled, and of air inhaled, with the rate of respiration and pulsation during the whole day and night at rest; also the variations of the day, with and without food and exertion; and those occurring from day to day and season to season. The peculiarities of his method of inquiry are—1. The collection of the whole of the carbonic acid evolved in the above conditions; and 2. The continuance of an experiment during the whole day, or its repetition at short and regular intervals during that period.

The total quantity of carbonic acid exhaled in the twenty-four hours was determined on four gentlemen in eight experiments, some of which were continued for eighteen hours, with short intervals for meals only, and others were made at the beginning of each hour and half-hour during that period. The quantity of carbonic acid exhaled in the six hours of the night was 1950 grains, and the total amount of carbon exhaled in the twenty-four hours at rest, varied as follows in the persons experimented on: in a person aged 39, 7·85 ounces avoirdupois; in a person aged 48, 6·768 ounces; in a person aged 27, 6·536 ounces; in a person aged 36, 5·676 ounces; or a total average, in eight experiments, of 7·144 ounces. The effect of walking at two and three miles per hour was found to be equal to 1 4-5th and 2 3-5th times that of rest; and, by making a computation of the amount of exertion made by different classes of the community, he found that in the non-laborious class the carbon was increased from 7·144 ounces to 8·68 ounces, and in the laborious class to 12·19 ounces daily. These quantities were contrasted with those obtained by previous observers. During profound sleep, the amount was reduced one-half from that of the average of the day, and increased gradually after 3 P.M. The variations during the day with food were so great that the maximum was one-half more than the minimum, the greatest occurring after each meal, but particularly after breakfast and tea, and the least immediately before the meals. During a fast of twenty-seven hours, the minimum quantity was maintained almost without change during the whole period whilst awake, and the quantity of carbon evolved in twenty-four hours without food was 5·923 ounces, instead of 7·84 ounces with food—a quantity equal to that in 20 ounces of bread. The blood and the excretions became very alkaline. The variations from day to day were due to temperature and the state of the system. Sudden increase of temperature caused a sudden decline in the respiratory changes, which continued until the temperature fell. This was an ever-acting cause of variation, but was the greatest after the cold of the winter. The state of the system caused by changes in the proportion of want and supply varied the quantity of carbonic acid evolved on the following morning. A good night's rest, a feeling of health, good supply of food, and not too much exertion, gave an increase on the following morning (therefore there was usually a high state of system on Monday), and the reverse under the contrary conditions. As these conditions vary from day to day, the amount of carbonic acid evolved varies every day. The variations which were due to seasons are very remarkable and important, since it was shown that the respiratory changes vary from season to season in a definite and periodic manner, so that the greatest changes occurred in the cold seasons, and the least in the hot seasons, and with definite periods at which this variation begins.

Dr. Smith also showed the amount of carbonic acid evolved with the exertion of the treadwheel.

All the above results were delineated upon an extensive series of diagrams.

Professors Williamson and Frankland bore testimony to the great accuracy of the method employed by Dr. Smith in a chemical point of view, the latter distinguished chemist stating that, having been himself one of the subjects of experiment for a whole day, he was convinced that the determination of the amount of carbonic acid was at least as accurate as could be obtained by the chemist in the laboratory when operating upon small quantities. Dr. Frankland also bore testimony to the very laborious nature of the inquiry.

Thursday, February 10th, 1859.

Sir Benjamin Brodie, Bart., President, in the Chair.

Experiments on the Action of Food upon the Respiration. By E. Smith, M.D., LL.B.

The method adopted by Dr. Smith was as follows:—First, to take the food under examination apart from the influence of other food, and therefore before any meal had been taken; secondly, to take about the quantity usually taken by mankind; thirdly, to ascertain the amount of carbonic acid expired and of air inspired, with the rate of respiration and pulsation, in a state of perfect rest and in the sitting posture, immediately before the food for examination was taken, and to compare all results obtained during the action of the food with this basis quantity; and, fourthly, to make an inquiry in from three to ten minutes after taking the food, and to repeat it every twelve or fifteen minutes until the maximum influence was obtained, the conditions as to posture and quietude remaining unbroken. He showed, from the hourly variations of these phenomena of respiration, that such an inquiry could not be made correctly between the meals, on account of the incessant variations then occurring from the meals (a source of error in the results obtained by Böcker and other observers); nor in the evening, since at that period all the phenomena declined; and that only in the morning, before breakfast, and before the usual breakfast hour, could trustworthy results be obtained. He also showed that the influence of food is evident soon after its introduction into the system, and attains its maximum within about two hours. The persons experimented upon were chiefly himself and Mr. Moul; but Professor Frankland, F.R.S., Mr. Hoffman, of Margate, and Mr. Reid, of Canterbury, had also submitted themselves to the inquiry.

The substances investigated were very numerous, and the experiments exceeded two thousand. The following is a list of the foods described in this communication:—

1. *Starch series:* arrowroot, arrowroot and butter, arrowroot and sugar, commercial starch, wheat starch, gluten, bread, oatmeal, rice, rice and butter, potato and gum. 2. *Fats:* butter, olive oil, cod-liver oil. 3. *Sugars:* cane sugar, grape and milk sugars, cane sugar with acids and alkalies. 4. The *milk series* (cows): new milk, skimmed milk, casein, casein and lactic acid, lactic acid, cream, sugar of milk and lactic acid. 5. *Alcohols:* spirits of wine, brandy, whisky, gin, rum, sherry and port wine, stout, ale. 6. The *tea series:* tea, green and black, hot and cold, in different quantities, and with acids and alkalies, coffee, coffee-leaves, chicory, and cocoa. 7. *Other nitrogenous substances:* gelatin, albumen, fibrine, almond emulsion.

The following are a few of the principal results:—

1. Pure starch and fats do not increase the quantity of car-

bonic acid evolved; but, on the contrary, the latter somewhat lessen it.

2. These substances are either not found alone in nature, or they are not used alone as food, but are associated with other substances which tend to call them into action, and which constitute a class which the author has termed "respiratory excitants".

3. The cereals—viz., wheat-flour, oatmeal, and rice, containing besides, starch, albuminous products, gluten, and sugar, have a great and enduring power in increasing the production of carbonic acid, an increase exceeding two grains per minute, and continuing upwards of two hours.

4. Milk in its natural combination, and in each of its elements, excites the respiration to an extent from new milk of nearly two grains of carbonic acid per minute. Lactic acid had the least influence, and then cream, but cream had more influence than butter. No artificial combination of the elements of milk produced the effect of the natural milk. Milk produces its effects in different degrees in those who like and those who do not like it.

5. Sugars are most rapid and powerful respiratory excitants, so that an ounce and a half of cane-sugar gave an increase of about two grains of carbonic acid per minute in less than half an hour. The addition of acid usually increased the maximum, whilst that of alkalies increased the duration of its influence. Milk sugar had less influence than cane sugar, and grape sugar less than either; but the latter still produced an increase of more than one grain of carbonic acid per minute. Thus of the hydro-carbons, sugar must be classed apart from starch and fat.

6. Tea and coffee are powerful respiratory excitants, producing an increase of from one and a half to three grains of carbonic acid per minute, and an effect which endured upwards of one hour. Acids added to tea rendered it more stimulating, and alkalies made it more soothing, but a fixed alkali destroyed its influence. Chicory and cocoa have a similar but less powerful action, whilst coffee-leaves caused a diminution in the exhalation of carbonic acid of one grain per minute.

7. Alcohols differ in effect both in the different members of the class and in different specimens of the same kind. Alcohol always increased the evolution of carbonic acid to the extent of less than one grain per minute. Rum, also, commonly had the same result; and good malt liquors produced an increase sometimes exceeding one grain per minute, and enduring more than two hours. Sherry wine commonly gave a small and sustained increase. Brandy and gin, and particularly the latter, lessened the quantity of carbonic acid evolved, whilst whisky varied with the different specimens. The inhalation of the volatile elements of alcohol and spirits and wines caused a diminution in the quantity of carbonic acid, and an increase in the vapour exhaled by the lungs. These various members of this heterogeneous class differ greatly in the amount of alcohol which they contain, as well as in their other elements—as sugar, gluten, acids, salts and volatile oils, and ethers—and, in the author's opinion, should not be classed together.

8. Gelatin, albumen, and fibrine, also increased the production of carbonic acid to a maximum quantity less than one grain per minute.

9. Thus nearly all nitrogenous foods are respiratory excitants.

10. Foods may be thus classed in reference to this latter quality: *Non-excitants*—starch, fat, some alcohols, coffee-leaves; *Excitants*—sugar, milk, cereals, potato, gluten, casein, gelatin, fibrine, albumen, tea, coffee, cocoa, chicory, alcohol, rum, ales, and some wines.

The author did not discuss the mode in which they produce these effects; but he adduced several facts which may aid in forming an opinion upon the subject. He also stated that whenever there was an increase in the quantity of carbonic acid evolved, there was also an increase in the quantity of air inspired; but that these were not due to increased *rate*, but to increased *depth* of respiration. He also found that the same food produced effects differing in *degree* in different persons, and in the same person at different periods; and such was also the case with the action of acids and alkalies upon the human system.

Professor Frankland bore testimony to the efficiency of the apparatus and the method employed by the author: and stated the great exactitude with which an observer could make inquiries after a little practice. He thought that the time had not arrived when we could determine with certainty the mode of action of foods; but he was of opinion that the author, by his very extensive and laborious inquiries, had greatly facilitated the efforts of future observers, and had done good service to physiological chemistry.

Dr. Carpenter expressed an opinion as to the cause of the inaction of starch, when taken alone, in accordance with the results obtained by the author on the action of gluten; and, referring to the large amount of hydrogen and oxygen contained in fats, explained that when the author had used the term "respiratory phenomena" in describing the results, he meant to limit himself to the carbonic acid, and not to include the formation of water.

Professor Sharpey stated that the author intended to determine the whole amount of oxygen consumed: but had not at present decided upon the most suitable kind of apparatus for that purpose. He also referred to the corroboration which this paper affords of the results obtained two years ago on the quantity of air inspired in reference to the different action of brandy and rum, which were read before the Royal Society; and showed that we are all conscious of difference in the effects of alcohols, whilst the chemical differences had not been hitherto well ascertained by chemists. He also showed the great importance of attending to minute differences, and illustrated his remarks by a reference to the recent brilliant experiments in electricity by Mr. Gassiot. He thought that, as physiologists, they were under obligation to the author for having given his results to the Society; and, in answer to Dr. Carpenter's observation, that experiments were required upon a larger number of persons, stated that the Society would be glad to learn, in a future communication, that that learned physiologist had submitted himself for experiment.

After a few observations by the President, and the thanks of the meeting given to the author, the Society adjourned.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Tuesday, February 22nd, 1859.

Sir Charles Locock, Bart., M.D., President, in the Chair.

SOME OF THE CYCLICAL CHANGES IN THE HUMAN SYSTEM CONNECTED WITH SEASON. BY EDWARD SMITH, M.D., LL.B.

Dr. Smith had occupied the last four years in determining the cyclical changes in the respiratory function, and referred to the two papers already published by him in the *Transactions* of the Society, and to very recent researches into the quantity of carbonic acid expired, and of air inspired, with the rate of pulsation and respiration in the cycle of the twenty-four hours, and then showed that the daily cycle is not the same at all times, but varies from day to day and month to month through the cycle of the seasons. He showed from the literature of the subject that, while the cyclical changes in any of the functions of the body had not been hitherto investigated, a large amount of knowledge had been gained in reference to respiration, but which was lacking in extent and demonstration. He particularly quoted the results obtained by Mr. Milner, surgeon to the Wakefield Convict Prison, which showed that the prisoners gain weight from April to October, and lose weight in the other months of the year. The author had made experiments upon himself, aged 39, and upon Mr. Moul, a gentleman aged 48, and had continued them upon himself from March 31, 1858 to the present time. Both gentlemen were without hereditary or acquired disease, in robust health, capable of, and accustomed to much mental and bodily exertion, above the middle height, and of very regular and moderate habits. The author takes every kind of food heartily, while Mr. Moul dislikes many. The time of experiment was from 7 to 8 A.M. before breakfast, with the body sitting and in perfect rest. His apparatus and method were then described and exhibited (see p. 253). The results of the experiments showed that as the season advanced from spring to the end of summer all the above-mentioned respiratory phenomena declined. The highest period was in the spring, the decline occurred at the beginning of summer, the lowest period was the end of summer, and the period of increase was the autumn. The extreme difference in the author was 30 per cent. in carbonic acid from the beginning of June to the beginning of September, and on the average of a month to the middle of August, was 17 per cent. in the carbonic acid, 30 per cent. in the air, and 32 per cent. in the rate of respiration. In Mr. Moul the loss at the middle of June was 27 per cent. in the carbonic acid and the air, and 28 per cent. in the rate. The author bears heat well, while Mr. Moul suffers much from it, and the results bear out a former observation by the author, viz. that those who bear heat badly have an excess of all the seasonal changes. The author then averaged

the months according to these seasonal changes, and showed that there are two tolerably fixed periods (maximum and minimum), and two periods of change (increasing and decreasing), and tabulated them as follows:—

Fixed ..	Maximum.—Jan. Feb. March, April, and May (sometimes Dec.)	
	Minimum.—July, August, part of Sept.	
Variable	Decreasing.—June (sometimes May.)	
	Increasing.—Oct. Nov. Dec. (sometimes Sept.)	

He then showed the relation which these changes have to temperature, pressure of the atmosphere, and vapour in the air, and proved that the latter do not altogether account for them. The relation of temperature and pressure is an inverse one, and the former is very marked in sudden accessions, and is therefore a frequent cause of variation; but a medium degree of temperature at 55° to 60°, and a medium height of the barometer, at 29 to 30 inches, are accompanied by all the degrees of respiratory change. He then quoted Barrall's experiments, showing the influence of season upon the ingesta and egesta, both of carbon and nitrogen, to prove that within certain limits variations in the amount of carbon exhaled indicate also similar variations in the nitrogen excreted. He also showed that as the skin had exhaled in July only six grains of carbonic acid per hour, in experiments upon himself, it was not important for him to refer to it. The author then applied this discovery to the production of disease, and showed that the dangers of the fixed periods are from excess in both directions, *i.e.* excess and defect, and increase with the duration; while those of the variable periods result from the want of ready adaptation of the system to the variation of the external influences, and particularly of temperature and food, and would be the greatest at the commencement. He had abstracted the deaths in each season in the five non-epidemic years in London (1850-4) from diseases having periods of seasonal increase, and determined the excess or defect in each quarter of the year from that which would have occurred if the deaths had been equally distributed over the year, and showed that there was a close correspondence between the states of the human system at different seasons and the type of disease then prevalent. Thus diarrhœa, cholera, plague, yellow fever, and asthenic diseases, with diseases of the bowels, prevail with the decreasing and lowest states of system, while diseases of the lungs and sthenic diseases, prevail with the maximum state. He also showed, further, that the advancing type of disease is that of the advancing season, so that in epidemics of scarlatina occurring after the minimum period the most asthenic type is observed at first, while in measles occurring with or after the maximum period, the most inflammatory cases occur early. Scarlatina is checked by the increasing state of the system and measles by the decreasing. Hence in every disease it is important to bear in mind the season of the year as indicative of the state of the human system, and in every epidemic it is necessary to consider the nature of the advancing season. The author had also investigated (by the kindness of the Registrar-General and Dr. Farr) the viability of children born at different seasons in reference to the period of procreation and of birth, the former illustrating the state of system in the parents, and the latter in the child, and found that it referred only to the latter. Of all the children who died under the age of one year in the northern district, from Newcastle to Kendal, in 1857, and whose age in months was recorded, the largest percentage was born in the summer months, the period of decreasing and minimum vital action of the human system. Animals which procreate once a-year have their sexual appetites excited in the hot season, but they bring forth their young in the cold season.

The author concluded the paper, with four following deductions:—

1. Seasonal diseases must now be referred directly to the state of the system, and only indirectly to meteorological conditions. This does not affect the fashionable search after poisons.

2. The type of a seasonal disease varies with the advancing season.

3. The cyclical rotation of the seasonal changes in the system explains in great part the cessation of seasonal diseases; for while such diseases may increase as the state of system increases in which they arise, they must decline and cease as the state of system changes into its opposite. This was illustrated by comparing the march of a cholera epidemic from June to November, with the variations then proceeding in the system, and also the cessation of an epidemic of scarlatina and measles.

4. These cyclical changes are a part of the *vis medicatrix naturæ*.

The author having thus proved the great importance to health of this rotation of changes, exposed the folly of endeavouring to maintain in our hopitals, public offices, and houses, an unvarying condition throughout the year, and stated that the contrary plan had been of incalculable value in the treatment of phthisis. He trusted that these results would afford a glimpse at some of the fundamental laws of the system.

Editor's Letter Box.

CONSTITUTION OF THE INDIAN MEDICAL SERVICE.

Sir,—Having been brought into contact at hospitals and elsewhere with a very large number of medical students, I have been repeatedly asked for information regarding the Indian Medical Service. These inquiries have been particularly numerous since the issue of the new Army Medical Regulations; and the inducements offered by the two services are being very closely scanned and compared. Finding very erroneous ideas prevalent with regard to the Indian service, it has occurred to me, that a portion of the space of the British Medical Journal might be advantageously allotted for the purpose of placing before the rising generation of practitioners, their relatives and friends, a fair and true statement of what the Indian service really is.

Previously to the year 1795, the service was composed (for the most part) of adventurers who went out to India as surgeons of ships, etc., and were admitted on the Company's army list by virtue of passing an examination before the Medical Boards of the Presidencies. About this time the Court of Directors placed the service on a more respectable footing; and, previously to the admission of any gentlemen, required diplomas from one of the colleges, London, Edinburgh, Glasgow, or Dublin, to be produced.

Simultaneously, the local government gave to regimental surgeons contracts for the purveying of hospital stores and the supplying of European and bazaar medicines. In consequence of this, medical officers found themselves in the receipt of enormous sums. This intelligence was not slow in reaching England; and the service was soon filled with accomplished surgeons—Wade, Balfour, MacLean, Fleming, and others.

In 1815, however, the contract system ceased, and an allowance was granted in lieu thereof; the government undertaking to find medicines and stores.

The large fortunes made during this period have surrounded the East India Medical Service with a false pecuniary halo; and the idea still lingers in the minds of many that the East is the place for the surgeon to realise a rapid fortune.

In 1828, by some further alterations, a blow was given to the prospects of all; and, although some favourable modifications were made in 1830, and again in 1858, still the junior members of the service were generally left on a rate of pay barely sufficient for expenses.

Admission to the service is now, as every one knows, by competitive examination. The Rules and Regulations may be found in the *East India Army Register*.

The medical establishments are three: those of Madras, Calcutta, and Bombay. They each consist of a director-general, inspector-general, superintending surgeons, surgeons, and assistant-surgeons.

The assistant-surgeon, having gained his appointment, ***must pay his passage out*** to Calcutta, Madras, or Bombay, according to the presidency to which he may be appointed. He must also purchase uniform and outfit. These expenses will not be covered by less than £200. He does not receive, as the civil servant does, any allowance before reaching India.

Arrived at the presidency, a few days sees him attached to the European hospital there, or to an European corps at an up country station. Here he remains some months (if the exigencies of the service do not require his removal), and has the care of a considerable number of patients, under the watchful eye of some senior officer. On his first arrival in India, he will require saddle, bridle, horse, tent, some small amount of furniture, and a host of minor articles, which will entail an expense of not less than £120. Having thus got rid of about £320, he now begins to receive pay at the rate of £270 per annum, or

£22: 10 per month; three pounds being added when actually seeing patients (conveyance allowance), per month.

We shall now see how far this is likely to meet his expenses; and for this purpose we will suppose him located at a station some distance from the presidency, where living is less expensive; and we will also suppose him to share the rent and occupation of a bungalow, or house, with a friend. The payments are calculated at the lowest possible amount, allowing that he lives in tolerable comfort; a certain degree of which is necessary in India for the preservation of health.

Receipts per month.	£25	10	0
Expenditure per month.			
Fund payments	2	10	0
Rent	3	0	0
Servants	5	0	0
Food, wine, beer, etc.	12	0	0
Clothes	2	0	0
Horse-keep	3	0	0
Repair of tent, etc.; and petty expenses	2	0	0
Mess, band, and station subscriptions	3	0	0
	32	10	0

The expenditure is thus £7 more than the receipts.

Lest these expense should be considered exaggerated, it must be borne in mind that, in India, all European articles are double or more in price what they are at home. Owing to "caste" several servants must be entertained; the man who spreads a cloth declining to do little else than that laborious duty. All the servants are males, and they often have with them not only their wives and children, but their parents and other relatives, all of whom, more or less, depend on the officer for support. The wear of tents, and destruction of the same, together with other articles, such as trunks, boots, etc., by ants, damp, and marching, is also considerable; and it not unfrequently happens that a horse dies from bowel-complaint, or the sting of some venomous reptile, or, if he does not die, becomes useless for a longer or shorter period.

After the lapse of a variable time, the longer the better, the assistant-surgeon finds himself "in orders" to proceed to some distant station, hundreds of miles away, there to take charge of some detachment, and march with it hundreds of miles elsewhere. From the day he leaves his station, not having patients to see, he ceases to draw his extra £3 per month. This reduces his pay to £22: 10, as before stated; until he arrives at more than two hundred miles from the presidency, when he again receives an addition of £3 under the term of "extra batta."

With marching come extra expenses. To get along comfortably, he should have another horse, or at least a pony; suppose the latter. His head servant will probably ask him for some kind of conveyance. He will require to advance money to pay his servants' debts; for he cannot march through jungles without servants. He must sell (of course at a loss) his small amount of furniture; £30 certainly will not more than cover these expenses, *making in all spent* £350. Arrived at the termination of the first portion of his journey, he takes charge of some detachment—say a battery of artillery; which brings him an addition to his income of £1: 4 if native; and £2 if European. His pay therefore will stand thus while he holds this charge; pay and allowances, £22: 10; conveyance allowance and extra batta as long as he is two hundred miles distant from the presidency, £6; charge allowance, £1: 5 or £2—say the latter; total, £30: 10. The expenses of marching, however, are so great, that he will be lucky, when he is again resident in a cantonment, if he does not find that he has spent somewhat more than he received.

He may now again be attached to some corps on his £22: 10 per month; and may again repeat, after a very short time, a march of the same description; or, some officer going away sick, he may be lucky enough to fall in for the temporary charge of a native regiment. For the first few years, however, he will not get permanent charge, but will oscillate from station to station; sometimes with a small charge, sometimes without; finding, at the end of three or four years, that he has saved *nil* towards coming home on furlough.

The fact is, that a medical man, when he enters the service, is situated differently from any other officer. A cadet joins a regiment, and becomes a portion of such regiment, and does not again leave it; but the medical man is so often moved from station to station, that his expenses must inevitably exceed those enumerated. Of course the career of each assistant-surgeon differs; some are lucky in dropping in for temporary charges; others are in the country five or six years without holding anything worth having.

At last, after about five years, the assistant-surgeon is posted permanently to a regiment, or, if he has interest, and passes an examination in the language, he may obtain a vaccinatorship or civil surgeoncy. His pay with a regiment will now be £39: 10 if within, and £42 per month if more than two hundred miles from the presidency.

Before this, however, his subscriptions to the funds have been considerably increased; he has also to pay a donation of £10 to the regimental mess, with other incidental expenses. He can live, however, very well *as a bachelor*, and may, probably, pay off a little of what he has previously spent above his pay.

Let us, however, examine his circumstances. Passage money, outfit, and equipment in India have been seen to be at least £350. The interest of this for five years at five per cent. will be £87: 10. It has also been seen that, in the majority of instances, expenses exceed income. £7 per month for five years amounts to £420, which, added to the previously mentioned sum, is £857: 10, representing the amount of capital invested, before he attains a post giving him sufficient for a comfortable subsistence.

Having attained the charge of a regiment, he there remains, and waits for his promotion; and his senior having died or retired he becomes *full surgeon, a post of dignity ranking with, but after a captain!* Any one would naturally suppose that he reached this rank in six or seven years; but, alas! it is not until he has served from *fifteen to sixteen years* that promotion comes. If he enters the service at the average age, twenty-four or twenty-five, *he numbers forty years before he becomes full surgeon!*

The Marquis of Dalhousie, in his memorable minute on the Indian Medical Service, presented to the Court of Directors in 1855, showed himself well aware of this slowness of promotion. Anxious to improve the service, that enlightened nobleman recommended (with the concurrence of the Commander-in-Chief,) that an assistant-surgeon, after seven years service, instead of drawing the charge pay of £16 a month, should draw that of full surgeon, viz., £30; but the honourable Court considered it would be sufficient to allow the increase after ten years service. This much was a boon, and as such was received, though a feeling of regret remains, that the Governor General's proposal did not meet with more liberal sanction.

The pay, then, of an assistant-surgeon in charge of a regiment after ten years service, if *recommended* for the extra allowance, will be £642 *per annum*. Supposing, however, he is removed from one charge to another, or vacates his appointment from sickness, the charge pay ceases, and he only receives, as at first, £270 *per annum*.

Having been gazetted as full surgeon, he pays several donations; one to his regimental mess; others to the funds, military or medical. His monthly subscriptions are also increased. The regulations require him to have a larger sized tent, and his pay is now £440 without charge, and £804 with charge, (infantry).

In the regulations regarding pay latterly published, the pay of an assistant-surgeon in charge of a cavalry regiment (regular), or horse-artillery, is set down as £514: 9. These *regular* cavalry corps, and artillery battalions, however, happening to be surgeon's charges, an assistant cannot hold them. In the absence, from sickness, of a full surgeon, it occasionally happens that an assistant-surgeon may hold one of these charges temporarily; but a surgeon is always immediately appointed to fill up the vacancy. Moreover, there are but three cavalry regiments in Bombay and Madras; and prior to the mutinies, there were but ten in Bengal.

Between the higher grade of superintending surgeon and that of assistant surgeon, there is no intermediate substantive rank, similar to that of surgeon-major in the royal army. All are surgeons *ranking as captains until they have served for thirty years*, and are then classed as majors *without any additional pay*. The average interval thus passed as full surgeon, is not less than fifteen years! fifteen of the best years of a surgeon's life in India; and it is during this period that the majority of the most efficient retire. Some inducement is necessary to tempt men in the prime of life and usefulness to remain in the service. Few are inclined to pass another fifteen years waiting for promotion. Hence the greater number leave at the very time their experience renders their services most valuable, particularly if they have any private means to add to the scanty pittance of £190 *per annum* less income tax,

which they receive from the government, after seventeen years service.

In the majority of cases it is too true that, up to his obtaining a full surgeoncy, the medical man has not received more than a bare sustenance; and, so far from being paid liberally for the service he has rendered to the state, considering the capital he has sunk in the attainment of his profession, and his outfit and passage to India, the clerk in the India House is more amply remunerated. Had the surgeon gone out as a cadet, the expenses of his education would have been saved, and his gradations to rank and pensions would have been more numerous, honourable, and lucrative.

The period of promotion to a superintending surgeoncy, from the time the medical man enters the service, has been hitherto thirty years, and upwards. Few men can realise the hope of living thirty years in an uncongenial climate, or, if they live so long, of retaining their mental and bodily energies. Yet the attainment of this grade affords almost the only prospect of saving, or perhaps of reimbursement. One in twenty of those entering the service are supposed to reach this rank, and about one in fifty the higher ranks of inspector and director-general, or, formerly, that of members of the medical boards.

The salary of the director-general of Bengal is £3,600 *per annum;* of the inspector-general, £2,400; of the superintending surgeons, £2,100. The corresponding ranks in the other presidencies are paid considerably less.

Nothing has been yet said about sick leave or furlough. The officer throughout his career has been supposed to enjoy good health. Few surgeons, however, are thus blessed in a country where there are so many climates inimical to human constitutions. Most men suffer from severe illness at one time or other, and, in consequence, are compelled to proceed to the hills, or to Europe. Then they are not only deprived of their higher allowances, but have many extra expenses to incur. The charge resigned into the hands of some expectant junior, the sick man wends his way to the presidency, where, if he remains sick, he is allowed a furlough to Europe for eighteen months or longer, as the case may be. On the old furlough regulations, he draws while in England £128 *per annum*, less income tax; on the new, something additional during the first six months; not a very magnificent sum on which to support himself and, perhaps, a family. If he comes home as a surgeon he receives higher furlough pay; viz., £190.

Unless he comes home on sick certificate, he is not entitled to revisit Europe until he has served ten years. He is then allowed two years furlough on the same rate of pay just quoted. There are few, however, who are not forced to return on sick certificate long before the completion of their ten years service.

It is a subject of just complaint, promotion being so slow, that an assistant-surgeon of fifteen or sixteen years service, when on furlough, or a surgeon of thirty years service, draws no higher rate of pay than he would if he came to Europe after holding either of the said offices a year or a month!

Having renovated his health, and renewed his professional knowledge, he returns to the East; and, on arrival, may perhaps be troubled with a little detachment duty, if the service require his attention in that manner; otherwise he will again take charge of a regiment, or resume, perhaps, his former appointment.

The preceding remarks have referred more particularly to officers employed on military duty, and, as such, receiving military pay and allowances. There are, however, a number of civil, or so-called staff-appointments, of which about fifty belong to the Bengal Presidency. Some of these can only be held by full surgeons; others are considered as belonging to assistant-surgeons. They are chiefly in the gift of the Governor of the Presidency, and are mostly obtained by interest exerted in one way or other; a certificate of having obtained a knowledge of the native language being also required. The Bengal medical service, however, consisting of 129 surgeons and 230 assistant-surgeons, total 359,—it will easily be seen that every one cannot hold a staff-appointment. Most of these offices are very well paid; others little better, if so well as those in the charge of a regiment. The residency surgeoncy of Lucknow was formerly worth £130 a month; that of Nagpore almost as much. The opium examinerships of Ghazeepore and Patna are excellent appointments. The civil surgeoncy at Indore, the assay-mastership at the Mint, the charge of the Botanical Gardens, Simla, Mussoorie, Delhi, Agra, Benares, etc., vary in value from £700 to £1000 *per annum*. In Madras and Bombay, there are also a certain number of good civil appointments distributed (rather few and far between) through the service.

The charge of irregular cavalry *corps* is chiefly held by assistant-surgeons, and is rather sought after, in consequence of horse allowance being given in addition to charge allowance and military pay; but as the medical officer, on joining such *corps*, is obliged to invest a considerable sum in the purchase of chargers, it is questionable if his extra pay will cause his riches to increase to any very considerable amount. The amount is £514 *per annum*.

Formerly, medical officers used to draw allowances for acting as assistant-magistrates, having charge of the post office, registry of deeds, registration of births, deaths, and marriages, etc. Now, however, it may be said, none of these offices are held by medical men. (*Calcutta Review*, No. 45, Surgeons in India, Past and Present.)

Surgeons in charge of the regular cavalry *corps*, and of battalions of artillery, receive horse allowance extra; viz., £6 per month. Surgeons in charge of the Company's European regiments also draw £2 per month extra for every hundred men they have under care. All, however, cannot hold either cavalry *corps*, artillery battalions, or European regiments.

We now come to the subject of pensions, and shall consider those only under the new regulations of 1856. After seventeen years service, the medical officer may retire on £190, less income tax; after twenty-one years service, on £250; after twenty-five, on £300; after twenty-nine, on £365; after thirty-two, on £500.

These sums not being sufficient to enable men to retire and support a family at home, medical retiring funds were instituted to aid this desirable event. There is one of like nature at each of the presidencies, to which every medical officer entering the service is obliged, as a condition of his appointment, to subscribe. There is some difference regarding the constitution of the funds at each of the presidencies; but it will be sufficient if one is described, say that of Bombay. To this fund a medical officer pays, on entrance, for the first two years, £18 *per annum;* afterwards, £30 *per annum*. On promotion to full surgeon, he gives a donation of £10, and afterwards subscribes £48 *per annum*. On promotion to superintending surgeon, he makes another donation of £20, and subscribes £120. The fund gives off three annuities of £112, £140, and £128, each year; but, as there are more retirements than annuities, a person has to wait some years after leaving the service before an annuity falls to his lot. Thus a person retiring, after seventeen years service, on the government pension of £190, becomes entitled to the pension of £112 from the fund after the completion of twenty years membership with the fund, but often has to wait still longer before he actually receives the annuity; and so on with the higher rates.

This fund is, however, in a very enfeebled condition; and the Bengal fund is not so flourishing as the one established on different principles at Madras.

It will be seen that these payments to the funds constitute a considerable item drawn from the monthly pay. Besides the medical fund, there are subscriptions of 13*s*. a month to be paid to the military fund; also a donation of £30 on entering the service; and the benefits derived from this are allowances of passage-money to England, if obliged to return on sick certificate. There are also mess, band, and station subscriptions, all of which tend to lessen materially the sum total received. Subscriptions to all the funds increase according to rank and length of service. Married men also pay additional.

Hitherto the medical man has been considered only as a bachelor. If he chance to marry, and have a family, his expenses will be most materially increased. There are extra donations and subscriptions to the different funds, and the expense of moving about is nearly doubled. The wife will require, sooner or later, to revisit England for her health; and children, at an early age, must be sent to England, or at least to Europe; otherwise, they suffer both morally and physically. Thus, in many instances, the officer has to support a family at home and himself in the East; while the loss of domestic comfort entailed is worthy of some consideration. The expenses of a family may be considered as at least double in India of what they would be in England.

The amount of professional labour falling to the medical officer is not, as a general rule, very great. Occasionally, however, when an epidemic of cholera or dysentery occurs, he has quite enough or too much to attend to. The work, however, which he has to perform, depends on the appointment he holds; some appointments entailing a good deal of labour, others not nearly so much.

In this sketch of the assistant-surgeon's career, his duties have been supposed to be on the peace establishment. I need not say that, if hostilities break out, and he is sent on actual service, he will, in all probability, suffer not only in health, but also in pocket, both as regards his receipts and expenses.

Each assistant-surgeon entering the Bombay Presidency is required to serve, during the first three or four years, a period of two on board the cruisers of the Indian Navy This is considered by many as a very unpleasant duty, and is certainly one entailing at the onset a considerable loss. The officer ordered for this duty may be stationed hundreds of miles up country, have to sell his horse, furniture, etc., and make a long march to Bombay, for the purpose of going on board ship. There, however much he may be troubled with sea-sickness, or dislike a naval life, he has no resource but to endure, and linger out his time as best he can in the Red Sea or Persian Gulf. Here his position is perhaps better than that of the assistant-surgeon in the Royal Navy, as he is always sure of the worst cabin in the ship; but some of the vessels are so very small, that it is impossible to live in them with any degree of comfort. If the officer like a sea-life, and can get into a large ship, he may pass these two years not unpleasantly. According to the regulations regarding assistant-surgeons, it is stated, "The medical is considered a branch of the military department". It is therefore, in most cases, considered a grievance when the assistant-surgeon finds he is obliged to become a naval officer.

An idea very prevalent and very erroneous is, that the medical officer makes a considerable sum over and above his pay from private practice. This can only happen to the three or four lucky men who have permanent appointments in the presidency; the natives up country having little or no faith in European doctors, and the European residents out of the service being none. On this point, read what Mr. Ranald-Martin says, in his evidence before the Select Committee of the Army Medical Department, July 3rd, 1856.

Question (by Sir J. Trollope, one of the Committee). "Have you not the further advantage of being allowed private practice, if you have an opportunity of obtaining it?"

Answer. "That can happen to few men; that was my own position. Holding a staff-appointment at Calcutta, I was in private practice."

Question. "Was not this a very lucrative practice?"

Answer. "It was a very lucrative practice; but the government pay did not pay for my horses!"

In Madras and Bombay, there not being nearly the number of European residents, there are not the same facilities for forming a practice enjoyed by those permanently stationed in the presidency cities.

With regard to the frequently asked question, Which is the best service, the Indian or the Queen's?—it seems certain that, under the new warrant, the latter bears scrutiny much the best. This question has been latterly ably considered by the Dublin Professor of Military Surgery; and I cannot do better than quote his remarks.

"Where can you get the best and surest return for your professional talents—the best market, in fact, to which you can carry your diploma? Under the new warrant, I do not hesitate to tell you, the Army Medical Department, 'What,' you will say, before the East Indian, or what was formerly called the Company's service?' Yes! The Company's service is the secondary position; and my reasons for asserting this are as follows. In the first place, it is complete expatriation; in the next, it entails, of necessity, the whole period being passed in tropical service, from which, if the heat disagrees with the individual, he has no power to extricate himself. *He cannot, as in the Queen's Army, get removed to a cold or temperate climate;* and must either drag out his existence in the East, or resign his commission. Such is no imaginary case; for now, even whilst I am speaking, my eye rests on a gentleman who exactly bears me out. His health was broken down in India; and, after striving to the utmost to remain there, he has been compelled to retire with too short service for a pension, yet too old to enter Her Majesty's service; and he has now to start anew in life, and with shattered strength to seek his fortune in private practice. The pay, too, of the Queen's medical officer, if called upon to serve in the East, is assimilated to that of the Company in the different grades; while the emolument of a surgeon of an European regiment is far beyond that of any native corps. Promotion, too, is *infinitely more rapid*, and retirement certain; whereas, in the Company's service, the real ability of retiring depends on the state of the military fund (and medical); for, unless this is capable of affording the extra gratuity, he cannot well do so on the Company's pension alone." (*Dublin Medical Press*, December 1st, 1858.)

In the Queen's service, the assistant-surgeon has no passage out to pay, and thus saves £110 or £120.

A writer in the *Medical Times*, February 25th, 1858, gives the following comparison between the Queen's and the Indian services.

An assistant-surgeon of sixteen years standing in the Indian service, on furlough in Europe, draws *6s. 6d. per diem.* An officer of the same standing in the Queen's service would probably draw three times that amount in Europe.

Queen's Service Medical Officer attains rank of	Indian Medical Officer attains rank of
Captain in 6 years; may do so in 5.	*Captain* in 13 to 15 years.
Major in 10 years at most; may do so in 5.	*Major* not under 30 years.
Lieutenant-Colonel, at any time after 10 years' service.	*Lieutenant-Colonel* not under 30 years, when he is superintending surgeon, selected from the seniors; and then he gets only the prize money of a captain when on the field.
Higher grades, by selection.	*Higher grades*, by selection.

Moreover, it seems probable that the transfer of the Indian forces to the Crown will pave the way for the Queen's officers holding staff-appointments in India, civil surgeoncies, and the like, which hitherto have always been looked upon as belonging to the Indian services.

There is probably no department of the Indian public service which has produced a greater proportion of distinguished men than the medical. To the patriotism of two of their number, Broughton and Hamilton, the foundation of the empire, "the brightest jewel of the British crown", may fairly be traced. The professional skill of the former, successfully exercised upon the daughter of Shah Jehan, procured the long desired privilege of establishing trading factories in Bengal, free of taxation; and, when this privilege was on the point of expiring, it was renewed by the surgical success of the latter upon the person of the Emperor Farukshere. The names of Annesley, Allan Webb, Twining, M'Lennan, and a host of others, are familiar. To one now in India, O'Shaughnessy, that country owes the successful introduction of the electric telegraph. To others, working with equal zeal, is in a great measure due the progress of civilisation, which we may hope will sweep away the superstition of ages. Where shall we find men who have done more for the advance of medicine and military hygiene than the accomplished physician Morehead, and the indefatigable Martin?

To a medical officer loving his profession, unless he holds a civil appointment, India presents few opportunities for practice and investigation. The duties are chiefly those of a general practitioner at home; but, in charge of a native corps, the surgeon may be months without anything to treat of a surgical nature; the chief of his cases being liver-disease, fever, and dysentery. He must, however, be "well up", as he knows not at what hour he may be placed in positions of the greatest responsibility, and have to perform operations single-handed which would be deemed formidable if in the hands of the whole surgical staff of St. Thomas's or Guy's, with all means and appliances at hand. Instances have been known where medical officers, not feeling equal to such performances, have been rash enough to commit suicide, preferring death to exposure. It is, therefore, incumbent on every one proposing to enter the Indian service, to become an eminently practical man. The soldier has no choice in his medical attendant, and must submit. It is lamentable to reflect upon the amount of mischief that must ensue from incompetency in a military surgeon, and particularly one stationed in India. Does the examination instituted for the Indian service sufficiently test the practical knowledge of the candidate for that service? I have no means of knowing, not having been present at an examination; but, as far as I can understand, too much appears to be thought of the candidate's knowledge, or the reverse, of botany and other collateral sciences.

I should not fulfil the intention of this letter if I omitted to say a few words on the subject of climate, for that is a point on which I am always questioned. Many places in India are undoubtedly unhealthy, and particularly inimical to European

constitutions; but at many stations there is no reason why an European should not enjoy *tolerable* health, at least for a time. He cannot, however, from the heat and its attendant annoyances, enjoy the comfort he would in a temperate clime. Much, however, will depend on the kind of duty the assistant-surgeon has to perform. If marched about a very great deal, if sent on active service, and exposed to the sun, night air, and miasm, if sent into the navy, and obliged to serve in one of the small brigs or schooners, he will most probably find his health suffer. Much depends on himself, his habits, diet, temperance, and care in not unduly exposing himself to the midday sun or miasmatous night air. In India, there is no climatisation. As a rule, persons seem to enjoy the best health during the first few years of residence, and gradually the constitution seems to deteriorate and break down.

I have now endeavoured to give a faithful account of the Indian service, as it affects the majority of those who enter it. I trust those now hesitating regarding their course in life may thus be enabled to arrive at a right conclusion. Let no one, however, enter the service with the idea of returning if they do not like it. Many do so enter, but few realise the idea. Home associations and opportunities are lost; their capital is invested in the East; and possibly they have insensibly adopted habits consequent on a roving life, which will not aid them in forming a practice.

The following is not overdrawn regarding a medical man's vocation in any part of the world, and certainly is applicable to life in India:—"When it is considered how much a surgeon must necessarily be exposed to the inclemencies of climate; how many comforts he is compelled to renounce; how many dangers, both by night and day, he must encounter; how many hardships he must endure; how soon his constitution is liable to be impaired by the fatigue and sudden changes which are inseparably connected with his employment,—it must be confessed that many situations are superior to that which he fills."

I am, etc.,

An Indian Officer.

London, March 1859.

INDIA MEDICAL SERVICE.

Sir,—In relation to the condition of the medical service of the Indian Army, letters have appeared lately in journals both medical and non-medical, all betraying a spirit of discontent. Will you permit me, through the medium of your columns, to express my opinion that, unfortunately, there is but too good ground for complaint?

Many years ago, a young medical officer joining the Indian Army was believed to be entering a lucrative service, with easy work to perform, and with the certainty of a good retiring allowance after the expiry of a short number of years. These advantages will not be found to belong to the service of the present day. With regard to pay, excepting in the case of a few very fortunate individuals, it is barely sufficient to cover the expenses of living in the most moderate manner. The work, considering the long distances to travel between the different stations, and the bad climate of India, is, I fancy, more laborious than that in most occupations in this country. The retiring allowances from Government are very small indeed: those obtained from the funds are all paid for; and, considering the high rate of mortality in India, are paid for, excepting in the case of Madras, at most exorbitant rates. In addition, promotion is very slow; and the number of those honorary rewards so highly prized in military services is very small indeed. Medical appointments in the English service are at present, in my humble opinion, far, very far, preferable to those in the Indian Army.

I am, etc.,

Indian.

London, March 1859.

CASE OF MEDICAL ETIQUETTE.

Sir,—Will you excuse the liberty I take in asking your opinion, and that of my fellow-associates, upon the following circumstance?

A and B are two surgeons residing in the same village. A is called at night to an accident. He dresses the wounds of the injured man, and sends him home in a carriage, promising to attend at his request on the following morning. The person injured is in the employ of a family to whom B is the medical attendant. B, hearing of the accident, drives to the residence of the family unsolicited, and awaits the arrival of the casualty. He removes the dressings A has applied, knowing that he has applied them, and takes charge of the case, calling upon A as he returns home, to say that he has done so, and that he considers the case his.

Should B have acted in this manner without first consulting with A? Has he acted in an unprofessional and ungentlemanly way?—or does the fact of his being the usual attendant on the family shield him from blame?

I have only to add that, as I am not personally interested in this matter, I enclose my card.

I am, etc., Medicus.

March 22nd, 1859.

[It seems to us that the nature of B's connection with the family rendered it his duty to ascertain, on hearing of the accident, whether his professional services would be required; and that he acted quite correctly in repairing to the residence of the patient. But, beyond this, the report of his conduct, as given to us, wears an aspect of *hauteur* towards A, which we cannot commend. Unless A had been a man utterly unworthy of confidence, we scarcely see what necessity there was for removing at so early a period the dressings which he had applied. B's course should have been, to leave A's work alone, unless for urgent reasons; to call on A, thank him for his assistance, and explain to him his (B's) position as the medical attendant of the family. A would then, of course, have relinquished the case into the hands of B. Editor.]

POOR-LAW MEDICAL REFORM.

Letter from R. Griffin, Esq.

Sir,—May I ask the favour of being allowed, through the medium of the Journal, to correct a mistake in the pamphlet (No. 3) recently issued, on the *Grievances of the Poor-law Medical Officers?*

On looking over the pamphlet, I find there is an error throughout the column No. 41, page 17; Nos. 34, 35, 36, and 40, having been added together, instead of Nos. 36 and 40 only. Any gentleman desirous of having a printed slip to paste over the incorrect number, has only to forward a postage stamp and his direction, and he shall have one. In all other respects, I believe the tables to be correct.

I am, etc., Richard Griffin.

12, Royal Terrace, Weymouth, March 17th, 1859.

CORONERS' INQUESTS AND MEDICAL FEES.

Letter from J. Ness, Esq.

Sir,—In the British Medical Journal of March 12th are two letters respecting coroners' inquests. Being one of the few coroners who are of the medical profession, I think it right to answer the inquiries therein contained, as far as I am able.

In Mr. George Terry's case, I am decidedly of opinion that medical evidence ought to have been obtained. The practice of coroners generally, before the passing of the Registration Act, was to inquire only whether the deceased came to his death from violence, or "by the visitation of God" from natural causes. The Registration Act made it imperative to inquire into the particular cause of death. The twenty-fifth section provides "that, in every case in which an inquest shall be held on any dead body, the jury shall inquire of the particulars required to be registered concerning the death", one of which particulars is the immediate cause of it. To enable the jury to arrive at a correct conclusion, medical evidence is often absolutely necessary; and it is the usual practice of coroners, when a medical man has been called in to see the deceased, to summon him to the inquest. The remuneration of the medical practitioner for his attendance upon the deceased is altogether distinct from his fee for evidence, and certainly ought, if the deceased has any effects, to be paid by his representatives. Whether such payment can legally be enforced, I do not undertake to decide; but I should much regret to hear that any medical man had refused to attend in a case of emergency until he was quite sure of being paid for it.

In the case stated by Mr. H. Terry, I think an inquest ought to have been held. The statute, *De Officio Coronatoris*, 4th Edward I, Sec. 2, enacts that "the coroner shall make inquiry of them that be suddenly dead". The rule generally acted on is, to hold inquests in all cases where persons, in their usual state of health, die suddenly, without medical aid. The danger of departing from this rule is sufficiently shown by the numerous cases of poisoning in Essex and Norfolk, and the

systematic poisonings of Palmer, which were long undetected, no inquests having been held, in consequence of the magistrates of those counties having issued instructions to the constables not to give notice to the coroners, except when crime was suspected; and the coroners were informed that, if they held inquests in such cases, their fees would be disallowed. Perhaps the coroner had the fear of such disallowance before his eyes in Mr. H. Terry's case. The power assumed by the magistrates of disallowing the coroner's fees is exercised arbitrarily, and upon no settled principles; it operates injuriously on the public weal and the utility of the coroner's office; and leads to unseemly disputes, from the assumption that he has held inquests unnecessarily, for the sake of putting a fee into his pocket. A Government Commission is now sitting to take evidence respecting coroners' fees; and I have reason to believe they have come to the conclusion to recommend that the coroners be paid by salary. If this mode of payment be sanctioned by the legislature, and the cases in which inquests should be held are more particularly defined, it will be a great improvement upon the present system, and will necessarily raise the office of coroner to its proper dignity, and greatly increase its public utility. I am, etc., J. Ness.

Helmsley, Yorkshire, March 15th, 1859.

Parliamentary Intelligence.

HOUSE OF LORDS.—Friday, March 18th, 1859.

SALE OF POISONS BILL.

This Bill was committed *pro forma*, and ordered to be reprinted.

HOUSE OF COMMONS.—Friday, March 18th, 1859.

POOR RELIEF (IRELAND).

Lord Naas obtained leave to bring in a Bill to amend the laws in force for the relief of the destitute poor in Ireland, and to amend an Act of the 14th and 15th years of Her Majesty, providing for the better distribution, support, and management of medical charities in Ireland. His object was to prevent children under five years of age being relieved in workhouses.

Medical News.

BIRTHS, MARRIAGES, DEATHS, AND APPOINTMENTS.

** In these lists, an asterisk is prefixed to the names of Members of the Association.*

BIRTHS.

Dill. On March 19th, at Brighton, the wife of *R. Dill, M.D., of a son.

Heffernan. On March 9th, at Sandgate, the wife of Dr. Heffernan, Surgeon 1st Battalion 11th Regiment, of a daughter.

Hubbard. On March 19th, at Market Bosworth, the wife of John W. Hubbard, Esq., Surgeon, of a son.

Llewellyn. On March 8th, at 9, Mount Place, London Hospital, the wife of Evan Llewellyn, Esq., Surgeon, of a son.

Meadows. On March 18th, at 9, Cavendish Place, Cavendish Square, the wife of A. Meadows, M.D., of a son, still-born.

Reid. On March 17th, at Hazelwood, Banffshire, the wife of Daniel Reid, M.D., of a son.

Williamson. On March 22nd, at Rochester, the wife of George Williamson, M.D., Staff-Surgeon, Fort Pitt, of a son.

MARRIAGES.

Heathcote—Thompson. Heathcote, Alfred Spencer, Esq., 60th Royal Rifles, to Mary Harriet, third daughter of *Charles M. Thompson, Esq., Surgeon, of Westerham, at Dehrah, North West Provinces, on February 5th.

Skinner—Hilton. *Skinner, Thomas, M.D., of Liverpool, to Hannah, eldest daughter of Henry Hilton, Esq., of Harpurhey, Manchester, at Harpurhey Church, on March 17th.

DEATHS.

Hine, John, Esq., late of the Bombay Medical Establishment, at Budleigh Salterton, aged 82, on March 18th.

Knox, Alexander, M.D., late Surgeon of the Military Prison, Aldershot, at 4, Derwent Villas, Hammersmith, on March 5.

Milton, William Mayler, Esq., Assistant-Surgeon Royal Artillery, at 3, Wells Street, Gray's Inn Road, on March 10th.

Moore. On March 21st, at 35, Montague Place, Russell Square, aged 31, Henrietta George, wife of Charles H. Moore, Esq., Surgeon.

Riach. On March 13th, at Plymouth, Margaret, wife of J. P. Riach, Esq., K.L.S., late of the Bombay Medical Service.

Scott, William, Esq., Surgeon, of Thornely, Durham, from concussion of the brain in consequence of being thrown from his carriage, on March 13th.

Snape. On March 20th, at Middleton Road, Dalston, aged 31, Eliza, wife of William H. Snape, Esq., Surgeon.

Terry. On March 19th, at Woodchurch, near Tenterden, Kent, Catherine, the wife of Edward Bacheler Terry, Esq., Surgeon.

Wilkins, H., Esq., Surgeon, of Bristol, aged 59, on March 16.

PASS LISTS.

Royal College of Surgeons. Members admitted at the meeting of the Court of Examiners, on Friday, March 11th, 1859:—

Bridger, John, Cottenham, Cambridgeshire
Clark, George, Newcastle
Cox, Henry, Gray's Inn Lane
Cuthbertson, Wm. Harrison, Lower Dorset Street, Dublin
Duke, Stephen, Chichester
Fletcher, Joseph Lyon, Manchester
Hamilton, John Butler, Lower Mount Street, Dublin
Hemphill, James Patton, Myroe, co. Derry, Ireland
Hooper, Clarence, Wootton Bassett, Wiltshire
Ilderton, Frederick, St. John's Street, Manchester
Roberts, Anthony Tucker, Old Cavendish Street
Savile, Robert, Nafferton, near Duffield, Yorkshire
Stewart, Charles John, Montague Place, Kentish Town

Monday, March 14th:—

Brigstocke, Richard Whish, Milford, Pembrokeshire
Carter, Robert, Dublin
Cookson, John Fowler, Preston, Lancashire
Gibb, Robert Cummings, Newcastle-on-Tyne
Lyel, Benjamin Bell, White Horse Lane, Stepney
Mahony, John, Sandymount, co. Tipperary
M'Dermott, James Lemesney, Kinsale, Cork
Mordue, Robert Dixon, Newcastle-on-Tyne
Nell, George Michael, Negapalam, East Indies
O'Hara, Daniel Murray, Hannalistown, near Belfast
Read, Reginald Bligh, Jewin Street, City

Wednesday, March 16th:—

Geoghegan, George Edward, Rathmines, Dublin
McKeever, John, Cape of Good Hope
Owen, George, Machynlleth, Montgomeryshire
Ringer, Sydney, Norwich
Roberts, Francis, Nelson Street, Dublin
Scott, John Alexander, Baymount, Clontarf, Dublin
Will, George Elmsley, Friendville, Aberdeen

At the same meeting of the Court—

Palmer, John Linton, of H.M.S. *James Watt*, passed his examination for Naval Surgeon. This gentleman had previously been admitted a member of the College: his diploma bearing date February 5th, 1847.

Friday, March 18th:—

Bloomenthal, Theodore, Newington Place, Kennington Park
Cæsar, Richard Thompson, Cork
Carnell, Clement John, Tunbridge
Rivington, Walter, Upper Holloway
Starling, Edward Augustus, Bishops Stortford, Herts
Winning, Robert, Bedford
Winslow, Henry Forbes, Montague Place, Russell Square

Monday, March 21st:—

Angus, John, Greek Street, Soho
Blakeley, Thomas, St. James's Place, Bermondsey
Blower, William, Bedford
Burrows, William Adcock, Islington
Davies, David, Ashby Street, Northampton Square
Eve, Richard Wafford, High Street, Deptford
Fennell, Edward Henry, High Street, Southampton
Gell, Alfred Scott, Felling, near Newcastle-on-Tyne

GRAHAM, George Young, Stockport, Cheshire
HAWKE, Charles John, Quebec
HEALEY, Edward, Hull
HUGHES, Thomas John, Woolwich
JAMES, Alfred, Sydenham
LEY, Richard, South Molton, Devon
MELDALA, Eleazar, Great Ailie Street, Goodmans Fields
MENZIES, Robert, Stamford Street, Blackfriars
MIDDLEDITCH, H. Arthur, Brunswick Street, Dover Road
MORLEY, Thomas, Oldham, near Manchester
SARGANT, William Thomas, Bletchingley, Surrey
SEQUEIRA, Henry Little, Aldgate
TOMES, John, Cavendish Square
WALLIS, William, Hartfield, near Tunbridge Wells

APOTHECARIES' HALL. Members admitted on Thursday, March 3rd, 1859:—

ASH, Thomas Linnington, Straton, Cornwall
CARDELL, George, St. Columb
CARVER, Frederick Charles, Royston
DAVIES, David, Aberdare
DONNE, Jeremiah Moulton, Castle Carey, Somerset
GODDARD, Robert Walker
FINEGAN, James, Liverpool
NEWMAN, Augustus, Oxford
WATSON, James, Loughborough
WRIGHT, Joseph Hiles, Evesham, Worcestershire

The following gentlemen also, on the same day, passed their first examination:—

ILLINGWORTH, John Alfred, Mainder, Newport, Monmouth
KENNARD, David, Lambourne
KIRBY, Thomas Charles, Bodicote, Oxfordshire

Thursday, March 10th:—

BREND, William, Bideford, Devon
DYSON, Alexander, Honley, Huddersfield
EVANS, Maurice Bibby, Glasgoed, Oswestry
GARNHAM, Richard William, Peninsular and Oriental Company
HARRISON, Alfred James, Belper, Derbyshire
MEDCALF, George, Royal West India Mail Steam Packet Company
STEDMAN, James Henry, Norwich
WALKER, John Harrison, Yorkshire
WYATT, Arthur, Bedford

The following gentlemen also, on the same day, passed their first examination:—

GODWIN, Charles Henry Young, Bishopstoke, Hampshire
LUMSDEN, William, Hull
SCOTT, Henry Thomas, Henry's Place, Kent Road

Thursday, March 17th:—

DAVISON, George William, Tynemouth
JAKINS, William Vosper, Cornwall
LAFARELLE, James, Coleshill, Warwickshire
KELTY, Patrick Manning, Newick, Sussex
NOBLE, Samuel Clarke, Kendal, Westmorland (M.R.C.S.)
SMITH, John, Birmingham
WILSON, Alexander, Manchester

At the same Court—

LLEWELLYN, David Herbert, of Easton Pewsey, Wilts, passed his first examination.

HEALTH OF LONDON:—WEEK ENDING MARCH 19TH, 1859.

[*From the Registrar-General's Report.*]

IN the week ending last Saturday, the deaths registered in London were 1175, the number being almost the same as that of the previous week, which was 1174. In the ten years 1849-58, the average number of deaths in the weeks corresponding with last week was 1229; but as the deaths now returned occurred in a population which has increased, they should be compared with the average raised in proportion to that increase; namely, with 1352. The comparison exhibits results as favourable as those observed in the previous week's return; for in each of the last two weeks the number of persons who have died has been less by 177 than the number that would have died under a rate of mortality equal to the average for the earlier half of March.

The number of births last week exceeded the deaths in the same period by 666.

The number of cases in which small-pox was fatal is 15, of which 7 occurred in the East districts. At 15, High Street, Mile-end New Town, a girl, 7 weeks old, died of this disease. The Registrar reports that four others in the same family are suffering from it, but are recovering, and that it is very prevalent all over his district. The mortality from scarlatina with diphtheria has scarcely varied during the last three weeks: the deaths from the two diseases were 81, of which cases diphtheria was fatal in 15, the number in the preceding week having been 19. The 15 occurred in sub-districts as follows: Chelsea North-west, 1; Belgrave, 1; All Souls Marylebone, 1; Somerstown, 1; Islington West, 2; Hackney West, 2; St. George-the-Martyr, Holborn, 1; Limehouse, 1; Bow, 1; Kennington first part, 2; Peckham, 1; Plumstead, 1. Diphtheria has attacked the inmates of a house, No. 8, Commercial Place, Peckham, which stands near an open sewer, and is exposed to the effluvium. A young woman who had not applied for parochial relief died in Bethnal-green from destitution. Two persons died from intemperance, 2 from delirium tremens; a child from ozæna maligna; a widow died at the age of 90 years, a man at 94.

Last week the births of 929 boys and 912 girls, in all 1841 children, were registered in London. In the ten corresponding weeks of the years 1849-58, the average number was 1692.

At the Royal Observatory, Greenwich, the mean height of the barometer in the week was 29·601 in. The readings varied from 28·94 in. on Tuesday to 30·21 in. on Saturday. The mean temperature of the week was 47·4°, which is 5·8° above the average of the same week in 43 years (as determined by Mr. Glaisher). On Sunday the mean temperature was 11·2° above the average of the same day; on Saturday the excess was only 1·9°. The highest temperature in the week occurred on Sunday, and was 58°; the lowest was 35·7° on Saturday. The range of the thermometer in the shade was therefore 22·3°. The mean daily range was 11·9°. On Monday the range was only 4·1°; on Saturday it was 18·1°. The difference between the mean dew-point temperature and air temperature was 5·7°. The mean degree of humidity of the air was 82; on Monday it was 94, approaching complete saturation. The mean temperature of the water of the Thames was 48°. The wind blew from a south-westerly point till Friday afternoon, when it changed to north-west. The rain-fall of the week was 0·41 in., about half of which took place on Monday.

THE INDIAN MEDICAL SERVICE.

THE subjoined memorial has been forwarded from the assistant-surgeons of Her Majesty's Indian Army in Bombay.

To the RIGHT HONOURABLE LORD STANLEY, *Her Majesty's Principal Secretary of State for India.*

The humble memorial of Assistant-Surgeon H. M.'s Bombay Army.

MOST RESPECTFULLY SHEWETH,—

That the constitution of H.M.'s Indian Army is such that your memorialist is superseded by his juniors of all departments, civil and military, and that when associated on duty with medical officers of H.M.'s British Army, he is invariably superseded by them, his social as well as military position being thereby materially affected.

2. That according to the present organisation of the Indian Army, medical officers have relative ranks assigned to them as follows:—Assistant-surgeons, on first appointment, as lieutenants; surgeons (average after 16 years), as captains; senior surgeons, after 30 years, as majors; superintending surgeons,* as lieutenant colonels; inspector generals,* as colonels; director generals,* as brigadier generals.

3. That by the Royal Warrant of 1st October 1858, medical officers of the British Army have relative ranks assigned to them as follows:—Assistant-surgeons on first appointment, as lieutenants, after 6 years service, as captains; surgeons (average less than 10 years), as majors; surgeon majors, after 20 years, as lieutenant colonels; deputy-inspector generals, after 5 years as such, as colonels; inspector generals, on appointment, as brigadier generals; inspector generals, after 3 years as such, as major generals.

4. That by the present rate of promotion in the Indian Medical Service, your memorialist has no prospect of attaining the superior grade of surgeon, and the relative rank of captain, until after 16 years service; the average rate of promotion being in Bengal 14 years, in Madras 17 years, and in Bombay 16 years service.

* From the date of their appointment as such, but during tenure of office only.

5. That your memorialist, under the present regulations, is now superseded by many years and will continue to be superseded, if he lives to attain the higher grades, by his juniors in the British Army, as is evident from the following table, wherein the rates of promotion of medical officers in H.M.'s British and Indian Armies are contrasted:—

British Medical Officers.	Indian Medical Officers.	Relative Army Rank.
On 1st appointment	On 1st appointment	As Lieutenants
After 6 years	After 16 years	As Captains
After 10 years	After 30 years	As Majors
After 20 years	Superintending Surgeon	As Lieutenant Colonels
Deputy Inspector General after 5 years as such	Inspector General	As Colonels
Inspector General	Director General	As Brigadier General
Inspector General after 3 years as such	No equivalent rank in the Indian Army	As Major General

6. That in all cases the principle has been invariably recognised and acted upon, of placing military officers of H.M.'s British and Indian Armies on a footing of equality as regards rank, pay, honours, and other privileges; as is exemplified in the recent assimilation of the artillery and engineer corps of both armies, the promotion of lieutenant colonels to the rank of colonels after three years command, and the steps of honorary rank to all officers on retirement.

7. That the Royal warrant of 1st October 1858 has considerably improved the position, pay, and emoluments of medical officers of the British Army, and allowed shorter periods of service to qualify for a retiring pension. It has also fixed a higher scale of retiring allowances than is assigned under present regulations to the medical officers of the Indian Army, whose whole period of service is passed within the tropics. The retiring allowances in British Army being regulated by rank and period of service taken together,—in the Indian Army by length of service *only*, as stated in the following table:—

Retired Allowances to Medical Officers in Her Majesty's British and Indian Armies.

Her Majesty's British Army.

Retired allowances under the terms of paragraphs 10 and 11 of Royal Warrant 1st October, 1858.	After 15 years.	After 20 years.	After 25 years.	After 30 years.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Inspector General . .	—	546 10 0	611 7 6	684 7 6
Deputy Inspector General	—	383 5 0	410 12 6	465 7 6
Surgeon Major . . .	—	301 2 6	337 12 6	—
Surgeon	246 7 6	—	—	—
Retired allowances at 7-10ths of Daily Pay after 25 years service (paragraph 12 of Royal Warrant),				
Inspector General . .	—	—	574 17 6	—
Deputy Inspector General	—	—	383 5 0	—
Surgeon Major . . .	—	—	319 7 6	—

Her Majesty's Indian Army.

	After 17 years.	After 21 yrs.	After 25 yrs.	After 29 yrs.	After 32 yrs.	After 35 yrs.
	£ s. d.	£	£	£	£	£
In H.M.'s Indian Army Retired Allowances are regulated by length of Service *only*, without reference to rank	191 12 6	250	300	365	500	700

From this table it is apparent that a medical officer in H.M.'s British Army is entitled after 25 years service, if an inspector general, to £574:17:6 per annum—if a deputy-inspector general, to £383:5—and if a surgeon major, to £319:7:6—whilst in H.M.'s Indian Army, a medical officer holding any of these ranks, and after the same period of service, is not under any circumstances entitled to more than £300 per annum; and even after 29 years his pension of £365 is less by £209:17:6, and after 32 years his pension of £500 is less by £74:17:6, than an inspector general in H.M.'s British Army is entitled to after only 25 years service.

8. That all other officers of H.M.'s Indian Army and Navy are allowed the option of retiring either on the pension of their rank after 22 years service, or according to length of service, no such option being allowed to medical officers; an invidious distinction, which was emphatically commented on by the late Governor General of India.

9. That the injustice of this distinction is apparent from the fact, that a military officer of the rank of major, or of lieutenant colonel, can retire on the full pay of these ranks after only 22 years service, whilst a medical officer, who necessarily enters the service at a more advanced age, is obliged to serve 25 years for the equivalent of a major's pay, and 29 years for that of lieutenant colonel.

10. That notwithstanding that medical officers are deprived of the privilege of retiring according to rank, the scale of their retiring pensions is actually less favourable than is assigned to military officers by length of service, inasmuch as a military officer (as may be seen by the following table) can retire on the pay of a major *four* years after being entitled to that of a captain, and on the pay of a lieutenant colonel *four* years after being entitled to that of a major, whilst a medical officer has to serve *eight* years after being entitled to the pension of a captain, before he can retire on the equivalent of that of a major (instead of four), and *twelve* years before he can retire on the pension of a lieutenant colonel (instead of eight).

Medical Pensions; present Scale, by length of service only.	Military Pensions by length of service and according to rank.	Medical Pensions if graduated proportionably to Military Pensions.
After 17 yrs. £191	After 20 yrs. £191	After 17 yrs. £191
„ 21 250	„ 24 292	„ 21 292
„ 25 300	„ 28 365	„ 25 365
„ 29 365	„ 32 456	„ 29 456
„ 32 500	And the pay of their rank after 22 yrs. service.	And the pay of their rank after 19 yrs. service.
„ 35 700		

11. That your memorialist confidently trusts that, in adjusting the rank, pay, and retiring allowances of medical officers of H.M.'s Indian Army, the same spirit of justice and liberality may be extended towards them as has been shown towards medical officers of H.M.'s British Army, and has been exemplified in assimilating the position of all military officers of the British and Indian Armies; due consideration and weight being given to the more advanced age at which medical officers enter the service, and the expensive nature of their preliminary professional education.

12. That the constitution of the medical department of the Indian Army differs from that of the British Army in many respects, and chiefly in that many of its members are employed by Government on civil and non-professional duties, similar to those of the Indian Civil Service. Medical officers so employed do not attain any higher rank than that of captain until they have completed 30 years service, when they reach that of major, after which they can never attain a higher rank should their service be extended indefinitely.

13. That all members of the Indian Civil Service have relative ranks assigned to them, after certain fixed periods of service, and are classified accordingly.

14. That when military officers are engaged on civil or non-professional duties, their progressive rank is not affected by being so employed, but advances in the same manner as if they had continued in the performance of military duty. Consequently medical officers employed on the same civil duties as civilians and military officers, are not only superseded by them in the junior grades, but are completely debarred from the superior ranks assigned to all civil and military officers, however employed.

15. That your memorialist begs most respectfully to be permitted to quote the words of the late Governor General of India on the subject of relative rank to medical officers, and their supersession by all other branches of the public service:—

"*It is impossible to conceive how such a system can have been maintained so long, on the strength of no better argument than that 'it has been' and therefore 'it ought to be.' It is impossible to imagine what serious justification can be offered for a system which in respect of external position, postpones service to inexperience, cunning to ignorance, age to youth; a system which gives a subaltern who is hardly free from his drill prece-*

dence over his elder, who perhaps has served through every campaign for thirty years; a system which treats a member of a learned profession, a man of ability, skill, and experience, as inferior in position to a cornet of cavalry just entering on the study of the pay and audit regulations; a system, in fine, which thrusts down grey-headed veterans below beardless boys." (Minute by the most noble the Governor General of India on the Indian Medical Service, para. 36.)

16. That your memorialist, in all deference and humility, trusts that at a time when arrangements are being made for reconstructing all branches of H.M.'s Indian Army, he is not exceeding a memorialist's privileges in respectfully submitting for your lordship's consideration the expediency of reconstructing the medical department of the Indian Army in such a manner as shall secure to all medical officers, after certain fixed periods of service, the same progressive grades of relative rank as are assigned by present regulations to all officers of the Indian Civil and Military Services, whether in civil or military employ.

Wherefore your memorialist earnestly prays that your lordship may be graciously pleased—

First, To take into consideration the subject of relative rank to medical officers of the Indian Army, with the view of preventing their supersession by all other branches of the service.

Second, To direct that the rules regarding precedence, honours, and all advantages attaching to relative rank, as well as honorary rewards for meritorious or distinguished service, and an increase of pay and retiring allowances, proportionate to that laid down in the Royal Warrant of 1st October 1858, be made applicable to medical officers of H.M.'s Indian Army, equally with those of H.M.'s British Army, so that your memorialist's present position and future prospects may receive the same consideration as has been shown to, and is now enjoyed by every medical officer in H.M.'s British Army.

And your memorialist, as in duty bound, will ever pray.

DR. BROWN-SÉQUARD. We learn from the *Lancet* that this distinguished physiologist, whose lectures last year at the College of Surgeons and St. Bartholomew's Hospital attracted so much attention, is about to deliver courses in Edinburgh and Dublin, and probably in Glasgow.

AMERICAN MEDICAL ASSOCIATION. The twelfth annual meeting of this Association will be held at Louisville, Kentucky, on May 3rd.

TO CORRESPONDENTS.

NOTICE.—DR. WYNTER will feel obliged if the Associates will address all Post Office Orders in payment of Subscriptions, to the Publisher, MR. THOMAS JOHN HONEYMAN, 37, Great Queen Street, Lincoln's Inn Fields, London, W.C., "Bloomsbury Branch"; and he would also feel obliged by their sending all communications respecting the non-receipt of the Journal, to the same address; as both these matters are out of the province of the Editor.

POSTAGE OF MANUSCRIPT AND PRINTED MATTER.

Any amount of manuscript or printed matter, singly or together, provided it contains nothing in the form of a written letter, is transmitted through the post, in packets *open at the ends*, at the following rates: not exceeding 4 ounces, one penny; above 4 and not exceeding 8 ounces, twopence; above 8 ounces and not exceeding 1 pound, fourpence; for every additional half-pound or under, twopence.

Members should remember that corrections for the current week's JOURNAL should not arrive later than Wednesday.

ANONYMOUS CORRESPONDENTS should always enclose their names to the Editor; not for publication, but in token of good faith. No attention can be paid to communications not thus authenticated.

Communications have been received from:—DR. EDWARD SMITH; MR. T. HOLMES; MR. JABEZ HOGG; MR. J. V. SOLOMON; DR. JAMES RUSSELL; DR. A. M. INGLIS; MR. F. HELE; MR. C. S. HADDEN; MR. R. DAVIES; MR. T. M. STONE; MR. JOHN BIRKETT; SIR CHARLES HASTINGS; DR. LEET; DR. HAYES JACKSON; MR. NUNNELEY; MR. R. GRIFFIN; DR. F. BRITTAN; DR. W. WEBB; MR. JOHN PROPERT; MR. H. W. RUMSEY; MR. R. BATES; MR. J. J. TERRY; MR. ERLIN CLARKE; MR. THOS. GRIFFIN; DR. W. OGLE; DR. BRYAN; MR. SUTTON; MEDICUS; MR. J. A. JINKINGS; MR. WOODHOUSE; INDIAN; MR. R. SANDFORD (with enclosure); DR. L. BEALE; and MR. CHATTO.

BOOKS RECEIVED.

[** An Asterisk is prefixed to the names of Members of the Association.*]

1. On Wounds and Injuries of the Eye. By William White Cooper, Fellow of the Royal College of Surgeons, etc. London: Churchill. 1859.
2. A Manual of Medical Diagnosis: being an Analysis of the Signs and Symptoms of Disease. By A. W. Barclay, M.D. Cantab., LL.D. Edin. Second Edition. London: Churchill. 1859.
3. Hæmorrhoids and Prolapsus of the Rectum: their Treatment by the Application of Nitric Acid. By Henry Smith, F.R.C.S. Pamphlet. London: Churchill. 1859.
4. Chloroform and other Anæsthetics: their History, and Use during Childbirth. By John Chapman, M.D. (Reprinted from the *Westminster Review* for January 1859.) Pamphlet. London: Williams and Norgate. 1859.
5. An Essay on the Action of Medicines in the System: or, on the Mode in which Therapeutic Agents introduced into the Stomach produce their Peculiar Effects on the Animal Economy. Being the Prize Essay for which the Medical Society of London awarded the Fothergillian Gold Medal for 1851. By Frederick William Headland, M.D., B.A. Third Edition, revised and enlarged. London: John Churchill. 1859.
6. On the Hygienic Management of Infants and Children. By *T. Herbert Barker, M.D.Lond. London: John Churchill. 1859.
7. A System of Dental Surgery. By John Tomes, F.R.S. With 208 Illustrations. London: John Churchill. 1859.
8. Healthy Skin: a Popular Treatise on the Skin and Hair, their Preservation and Management. By *Erasmus Wilson, F.R.S. Sixth Edition. London: John Churchill. 1859.
9. Report on Influences of Marriages of Consanguinity in Offspring. By S. B. Bemiss, M.D. Philadelphia: Collins. 1858.

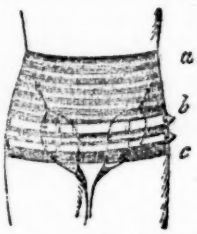
ADVERTISEMENTS.

Dr. Alexander Wood's Narcotic INJECTION SYRINGES are manufactured by ARCHIBALD YOUNG, Queen's Cutler, 79, PRINCE STREET, EDINBURGH.

A. Y. Imports OBERHAUESER'S MICROSCOPES, the BEST and CHEAPEST Instrument for SURGICAL purposes.

Orders for these Instruments will be promptly attended to.

Huxley's Spiral Abdominal Belt is constructed on a principle which secures the required support, without being liable to displacement, the fault which has hitherto characterized these appliances, which are invaluable, when properly constructed, in cases of Pregnancy, Obesity, Ovarian Dropsy, etc. When required, they are fitted with Air-pads for Umbilical, Inguinal, and Femoral Hernia; also with a longitudinal Air-pad for the support of the lower part of the Abdomen, and Band with Air-pad for Prolapsus Uteri and Prolapsus Ani. These goods, in addition to Stockings, Thigh-pieces, Knee-caps, etc., supplied 30 per cent. lower than the prices hitherto charged, every article being of the very best quality.



Measures required—Circumference at *a*, *b*, *c*; depth from *a* to *c*.

Priced and Illustrated Catalogues on application to E. HUXLEY, 12, Old Cavendish Street, Oxford Street, W.

TRADE MARK.

Patent Corn Flour. — The most wholesome part of Indian Corn is preferred to the best arrow-root; a light agreeable diet for daily use, and especially suited for children and invalids. Packets, 16 oz., sold by Grocers, Chemists, etc.

BROWN & POLSON, Paisley, and 23, Ironmonger Lane, London.

TO ADVERTISERS.

British Medical Journal.— Office, 37, GREAT QUEEN STREET, LINCOLN'S INN FIELDS, LONDON, W.C.

The Journal of the British Medical Association is published every Saturday, and is transmitted direct from the Office to BETWEEN TWO AND THREE THOUSAND Members of the Association in all parts of the United Kingdom, among whom are the Medical Officers of most Hospitals and Dispensaries, and the majority of the leading members of the profession. It is also taken in by many Libraries and Medical Societies, and thus comes under the notice of a large number of Medical Men not connected with the Association.

The following were the numbers of Stamps issued to the four London weekly Medical periodicals in 1857.

British Medical Journal	**106,534**
Lancet	60,250
Medical Circular	57,600
Medical Times and Gazette	44,725

SCALE OF CHARGES FOR ADVERTISEMENTS.

Four lines and under	£0 2 6
Each additional line	0 0 6
A whole column	2 15 0
A page	5 0 0

A line contains ten words.

When a series of insertions of the same advertisement is ordered, a reduction is made in the above charges.

Advertisements ought to be delivered and paid for at the Office on the Thursday preceding publication; or if not paid for at the time, should be accompanied by a respectable reference.

Post-Office Orders are to be made payable at the "Bloomsbury Branch" Office, to THOMAS JOHN HONEYMAN (the Publisher), 37, Great Queen Street, Lincoln's Inn Fields, London, W.C.